

HITCHCOCK'S *Machine Tool* BLUE BOOK

FOUNDED

AUGUST 1937

1905

Finger-Tip Controls

helps ordinary mechanics to do the work of
skilled mechanics—RAPIDLY with

—HARDINGE—

Ball Bearing Bench Lathes

No reaching into out-of-the-way places with
arms and legs—no fumbling with controls—
Finger-Tip Control of spindle speeds, idling
stop and quick stop braking action means
increased production—better workmanship.

Send Coupon No. 1 for Bulletin BB.



HARDINGE BROTHERS, INC., - ELMIRA, N. Y.
CHICAGO - NEW YORK - PHILADELPHIA - DETROIT - HARTFORD

PUBLISHED AT 508 SO. DEARBORN ST., CHICAGO

MARVEL NO. 8

(Metal Cutting)

BAND SAW

Cap.
18"x18"



The most versatile saw built—handles all work from 1/2"x1/2" to 18"x18"—can straighten or at any angle from 45° right to 45° left. Both hand and power feed with large flat planer-type bed that simplifies setting up of even the largest and most cumbersome work.

Saves "warehouse cutting extra." Saves innumerable planer, shaper and milling machine hours roughing to size and shape. Does all ordinary sawing efficiently as well as reworking, notching and many special operations. The MARVEL No. 8 is the logical first saw for any shop — is one of the lightest and most portable machine tools.



SALES REPRESENTATIVE: J. H. BROWN & CO., INC.
ARMSTRONG BLUM MFG. CO.

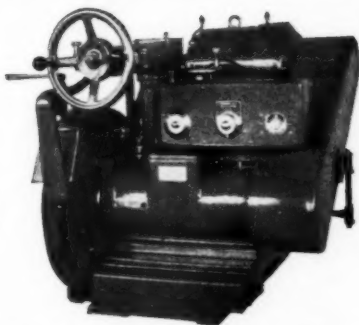
"The Rock Saw People"

140 N. Franklin Ave. CHICAGO, U. S. A.

THE BOWGAGE

INDEPENDENT GRINDING WHEEL HEAD

A
New
Method
OF
Grinding
Feed



**YOU CAN REVAMP YOUR OLD MACHINES
TO GIVE THEM COST SAVING FEATURES
NEW MACHINES DO NOT HAVE**

Why not let us equip your old plain cylindrical grinders with this new wheel head? It can be fitted to most any grinder to give you a complete automatic hydraulic cycle with rapid traverse and return.

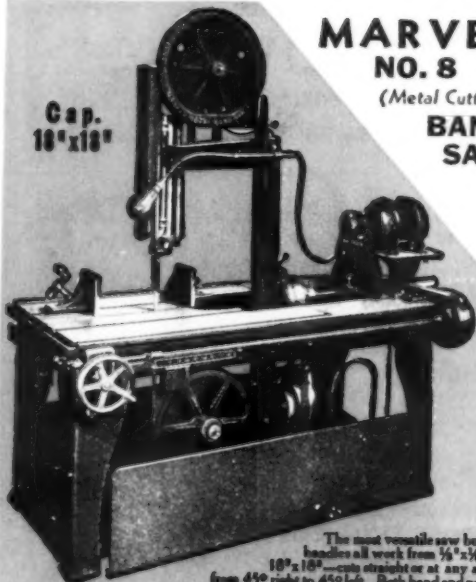
Feeds, speeds, and grinding dwell are immediately selective from dials on the panel.

Duplication of sizing to within .0002" by the stop method is assured. Grinding wheels up to 24"x2" can be used.

Send Coupon No. 21 for detailed information

FITCHBURG GRINDING MACHINE CORP.
FITCHBURG, MASS.

Cap.
18"x18"



MARVEL NO. 8

(Metal Cutting)

BAND SAW

The most versatile saw built—handles all work from $\frac{1}{8}$ " x $\frac{1}{8}$ " to 18" x 18"—cuts straight or at any angle from 45° right to 45° left. Both hand and power feed with large flat planer-type bed that simplifies setting up of even the largest and most cumbersome work.

Saves "warehouse cutting extras." Saves innumerable planer, shaper and milling machine hours roughing to size and shape. Does all ordinary sawing efficiently as well as mitering, notching and many special operations. The MARVEL No. 8 is the logical first saw for any shop—is one of the busiest and most profitable machine tools.



Send Coupon No. 5 for Bulletin 800-A

ARMSTRONG BLUM MFG. CO.

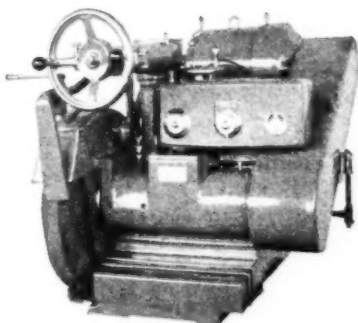
"The Hack Saw People"

341 N. Francisco Ave., CHICAGO, U. S. A.

THE BOWGAGE

INDEPENDENT GRINDING WHEEL HEAD

A
New
Method
OF
Grinding
Feed



**YOU CAN REVAMP YOUR OLD MACHINES
TO GIVE THEM COST SAVING FEATURES
NEW MACHINES DO NOT HAVE**

Why not let us equip your old plain cylindrical grinders with this new wheel head? It can be fitted to most any grinder to give you a complete automatic hydraulic cycle with rapid traverse and return.

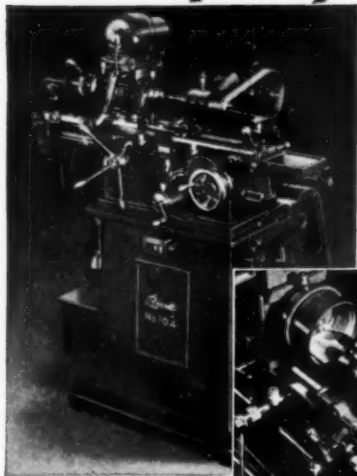
Feeds, speeds, and grinding dwell are immediately selective from dials on the panel.

Duplication of sizing to within .0002" by the stop method is assured. Grinding wheels up to 24"x2" can be used.

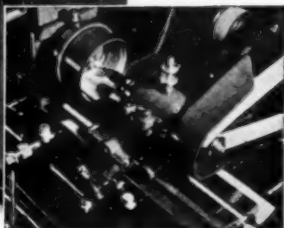
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FITCHBURG GRINDING MACHINE CORP.
FITCHBURG, MASS.

Small Hole Grinding



RIVETT
No. 104
INTERNAL
GRINDER



Mounted wheel held in chuck grinding small bore with spindle turning at 35,000 r. p. m.

The Rivett No. 104 Grinder is designed to meet demand for a small hole grinder suitable for precision tool making and accurate manufacturing. It may be used as a single purpose machine in efficient production or readily and rapidly set up for the many varying requirements of the tool room. Correct in proportion and design, the extremely high spindle speeds necessary for small hole grinding can be maintained within the required limits absolutely free from vibration.

Although primarily an internal grinder, an external grinding attachment can replace the internal spindle bracket. The Rivett fixed diamond method is used for truing both internal and external wheels. For further information send Coupon No. 24 for bulletin 104-C.

RIVETT LATHE & GRINDER INC.
BRIGHTON BOSTON MASS

COMBINATION TAP AND DRILL GRINDER



Grand Rapids
Combination
Tap and Drill
Grinder
No. 10-B
Motor Driven
4 Styles

This Grand Rapids Grinder does the work of two machines. It is rugged and fast enough for production grinding, occupies very little floor space, and is inexpensive to buy. Capacity, Drills: $\frac{1}{8}$ to $1\frac{1}{2}$ ". Capacity, Taps: No. 6 to $1\frac{1}{2}$ ".

Get RID of your Tap Troubles ... and most of your TAP COSTS

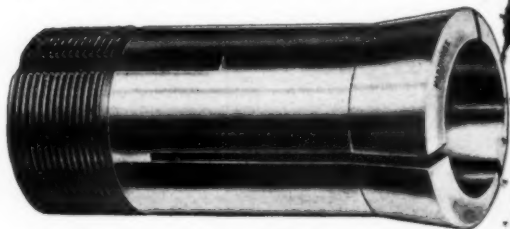
If you use taps and drills and would like to eliminate breakage arising from imperfect grinding—would like to save the waste which results from excessive and too frequent grinding—would like to have your tools cut with about half the power usually required—would like to save half the time now spent in grinding—would like to have your taps and drills stay sharp twice as long—would like to eliminate torn and stripped threads in your tapped holes and have the thread just right—in short, if you want to get rid of your tap and drill troubles and most of your tool cost—investigate this Grand Rapids Combination Grinder.

Write for Complete Information TODAY
Use Quickmail Coupon No. 72.

MANUFACTURED BY

GALLMEYER & LIVINGSTON CO.
303 STRAIGHT AVE., GRAND RAPIDS, MICH.

COLLET AND FEED **HARDINGE**



Spring Collets for Your Lathes and Millers

Forty-seven years of manufacturing experience is your guarantee that desirable characteristics are embodied in HARDINGE Collets.

Make certain that the name HARDINGE appears on collets which you purchase for use with lathes and milling machines. The stamping on the face of the collet indicates that finishing grinds are made after hardening to assure concentricity.

Accuracy is always associated with HARDINGE Collets.

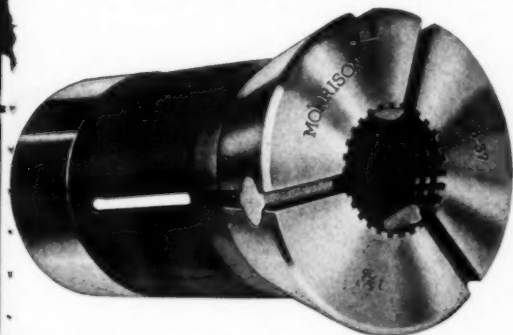
Durability with accuracy comes from special steel, uniform heat treated threads, hardened surfaces for gripping or bearing and spring temper for proper operation.

—Prompt shipment from stock—

Send Quickmail Coupon No. 2 for latest bulletin No. 37

—Always specify HARDINGE collets—

HARDINGE BROTHERS, Inc. - - - ELMIRA, N. Y.

FINGER SECTION **MORRISON**

Spring Collets and Feed Fingers
for

Your Automatic and Hand Screw Machines

Screw machine users decrease the "down" time and increase production by standardizing on MORRISON Collets, Feed Fingers and Pads.

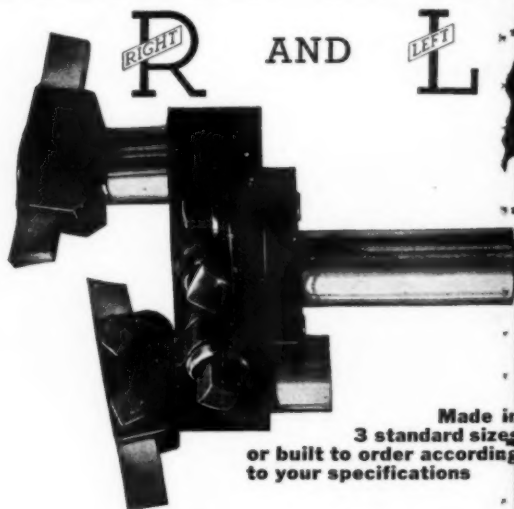
Pioneers in supplying Collets, Feed Fingers and Pads for all screw machines, we developed special steels, heat treatment and incorporated features for improved performance and longer life.

Delivery is important—standard size Collets, Feed Fingers and Pads are carried in stock for immediate shipment. Sizes not in stock are made from blanks carried in stock.

Send Quickmail Coupon No. 3 for complete catalog No. 34.

—MORRISON means economy and performance—

MORRISON MACHINE PRODUCTS, Inc. ELMIRA, N. Y.



Made in
3 standard sizes
or built to order according
to your specifications

Save On Your Set-Up Costs With This Combination Tool

By using various adjustments, one R & L turning tool can be made to perform a variety of operations, singly or together, thereby saving not only tool costs but time required for setting up machines. Extremely fine adjustments are provided both on the tool and on the pressure of the burnishers.

Ask for complete details

R AND L TOOL

Turning Tool



Entire tool is made
of heat — treated
alloy steel

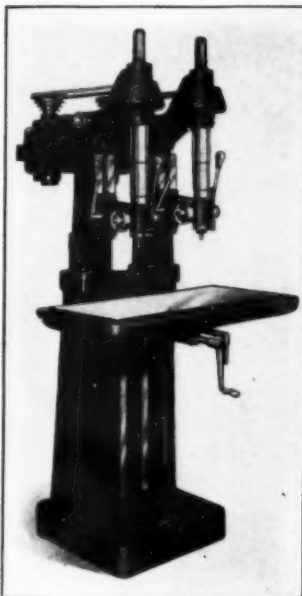
Easily Changed In 10 Seconds For Right Or Left Hand Work

Speed in making set-ups is essential to economy. An R & L Turning Tool can be assembled and adjusted quickly for almost any kind of turning work. Tantalum carbide faces on the backrest act as a burnisher, eliminating rollers and misalignment due to roller wear and producing a highly polished surface.

Send today for your booklet

L. Nicetown, Philadelphia, Pa.

Specially Designed to Cut *Your* Cost of Small Drilling Work



"Buffalo" No. 14 multiple spindle drills are built for modern production on a precision basis. Will handle work from $\frac{3}{8}$ " to smallest commercial size. Five speeds—V-Belt drive—Alloy steel spindles run in ball bearings—Sensitive, convenient hand-feed—Heavy iron cast frame assuring rigidity and perfect alignment.

Available in either bench or pedestal type—1 to 6 spindles.

All the facts are contained in our bulletin 2726-B. Send Coupon No. 8 for it.

BUFFALO FORGE COMPANY

161 Mortimer St.,

Branch Offices
in Principal Cities

Buffalo, N. Y.

IN CANADA: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo" No. 14 High Speed
SENSITIVE DRILL



THE KELLERFLEX High Speed Attachment . . . a three to one speed increase for any flexible shaft machine . . .

Small grinding wheels or mounted stones work best at much higher speeds than most flexible shaft machines can produce. The wheels wear down evenly and last longer. And there are many other places where higher speeds are desirable for better efficiency. This High Speed Attachment fits the Kellerflex machine, and can be adapted to any other make. It uses spiral bevel gears of special heat treated steel, with all moving parts ball bearing mounted. The housing is of special tough aluminum alloy which is light and easy to handle. It takes less than a minute to assemble the attachment on the shaft ready for use. For complete information write to the Kellerflex Sales Dept.

Use Quickmail Coupon No. 66.

PRATT & WHITNEY
Div. N-B-P Co. **HARTFORD, CONN,**

The Punch Press Sensation!

SUPER SPEED

No Vibration
INSTANT STOP
Quick Change

PUNCH PRESS

ACCURACY
Feed Control
While Punching

AN ENTIRELY NEW PRINCIPLE

**1,000 STROKES EACH MINUTE
SINGLE DIE — 1,000 BLANKS**

HOW? By using the SUPER SPEED PUNCH PRESS
with its continuous feeder which never
allows the stock to stop.

No cams, pawls or
ratchets.

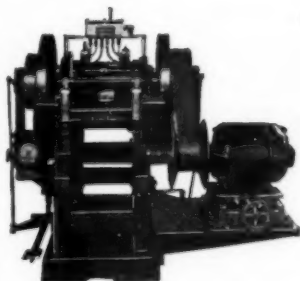
Greatest advance in
speed since incep-
tion of punch
presses.

Guides below punch
level.

Variable speed
control.

Operates with a sin-
gle die. No costly
"ganging" of dies.

High production
means minimum
labor cost.



Its production value has been fully proved.
Send samples of blanks for guaranteed production.

**NOW BEING USED BY SOME OF THE LARGEST
INDUSTRIAL COMPANIES!**

Send Quickmail Coupon No. 50 for descriptive pamphlet.

SUPER SPEED PRESS

CORPORATION

Plant:
Reading, Pa.

Office: 55 Liberty St.,
New York, N. Y.

"BACKED BY 18 YEARS OF THREAD GRINDING EXPERIENCE"



**COMPLETE COVERAGE OF ALL
THREAD GRINDING NEEDS**
WITH THE J&L AUTOMATIC THREAD GRINDER



The J&L Automatic Thread Grinding Machine will grind right- and left-hand threads from 2 to 48 pitch inclusive; threads with single, double, triple, quadruple, or sextuple lead; and from the solid or from previously roughed threads.

With standard attachments the machine also will grind relief on taps and hobs, and jump flutes such as on inserted-blade taps. A hob grinding attachment permits grinding thread hobs without lead.

The J&L Automatic Thread Grinding Machine is designed for single piece or small lot runs, as well as for continuous production, where all the automatic features may be used to full advantage.

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JONES & LAMSON MACHINE COMPANY
SPRINGFIELD, VERMONT, U. S. A.

STYLES

to suit your installation

STROKES

to meet your requirements

CAPACITIES

as you need them



T-J
AIR and HYDRAULIC
Non-Rotating,
Double Acting
Cylinders.

May we send you our catalogs
which give the specifications
of these cylinders ?

Write for them with Quickmail Coupon No. 14

THE TOMKINS-JOHNSON CO.

605 N. Mechanic Street

Jackson, Michigan

1905



1937

FLEXIBLE SHAFT MACHINES

We illustrate herewith our new style bench type machine for tool and die makers, with universal swiveling mounting. Also right angle hand piece.

TYPE MY4... $\frac{1}{4}$ H. P.



This machine is furnished in two combinations of speeds.

1700 — 3000 — 5200

or

3400 — 6000 — 10,400

RIGHT ANGLE HAND PIECE



Send for our Catalog—Sixty Types and Sizes

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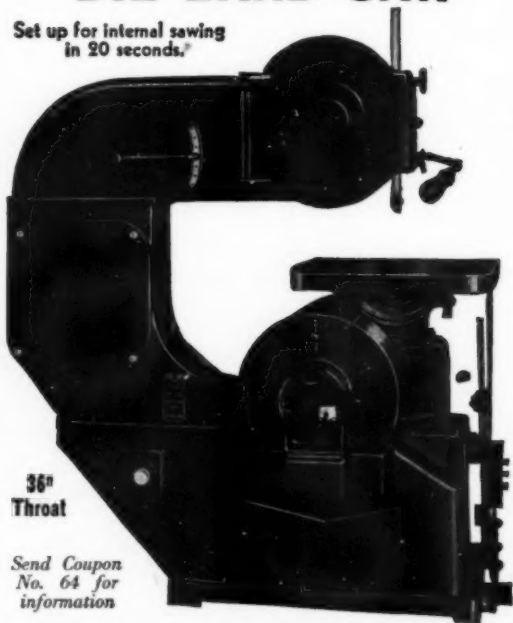
N. A. STRAND & CO.

5001-5009 N. Wolcott Ave.,
Formerly Lincoln Street

CHICAGO

AN ACHIEVEMENT IN DIE MAKING THE WORLD'S BEST DIE BAND SAW

Set up for internal sawing
in 20 seconds.*



**36"
Throat**

*Send Coupon
No. 64 for
information*

GROB Open End Band Saw Type OS 36

Ideal for very intricate small dies.
Equally good for large, heavy work.

GROB BROTHERS
GRAFTON WISCONSIN

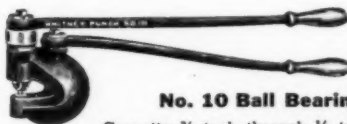
Whitney Punches

Standard Equipment for Any Job



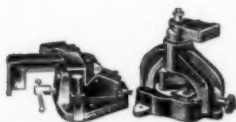
Aircraft Rivet Squeezer

Capacity $\frac{1}{8}$ inch aluminum rivet. Spindle travel $1\frac{1}{8}$ inch. Made in 5 sizes, with throat depths from $1\frac{1}{4}$ to 6 inches.



No. 10 Ball Bearing Punch

Capacity $\frac{3}{8}$ inch through $\frac{1}{4}$ inch iron. Depth of throat $1\frac{1}{8}$ inch. Height of throat $\frac{1}{8}$ inch. Furnished with one punch in any size from $\frac{1}{8}$ to $\frac{1}{2}$ by $\frac{1}{32}$.



**Angle Mitre Notcher
and Angle Iron Bender**

Capacity $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$ angle iron or smaller. A pair of tools that every shop ought to have. They are Nos. 50 and 51 in our catalog.

*WHITNEY manufactures
over 80 types of
punches and shears*

*Send Coupon
No. 42 for
your copy of
the Whitney
catalog.*

WHITNEY METAL TOOL CO.
ROCKFORD, ILLINOIS

The New Hack Universal

Reduces Die Making to A ONE MACHINE JOB

Here's the answer to quicker, more efficient, more economical production in the tool, die, mold and metal pattern fields...

A simple, sturdy precision machine that is versatile, combining heavy duty back geared power with high speed cutting—vertical reciprocating with rotary motion—ample power for heavy cuts and speed for light work—handling a maximum number of operations with a minimum number of attachments which can be changed almost instantly. One man can easily mount any attachment.

The Hack Universal soon pays for itself through the savings which it makes possible—thereafter it will pay dividends.

Doesn't that merit investigation ?

*Use Quickmail Coupon No. 32
for full information.*

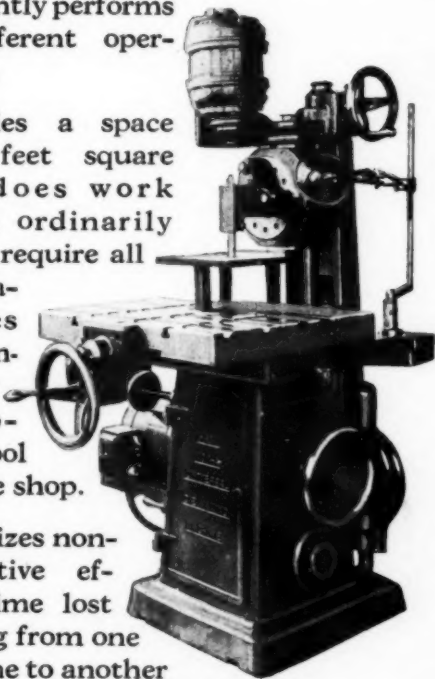
Hack Universal Die Making

A Die Making Machine

Efficiently performs
15 different operations.

Occupies a space
four feet square
and does work
which ordinarily
would require all
the facilities
of a completely
equipped tool
and die shop.

Minimizes non-
productive effort—time lost
walking from one
machine to another



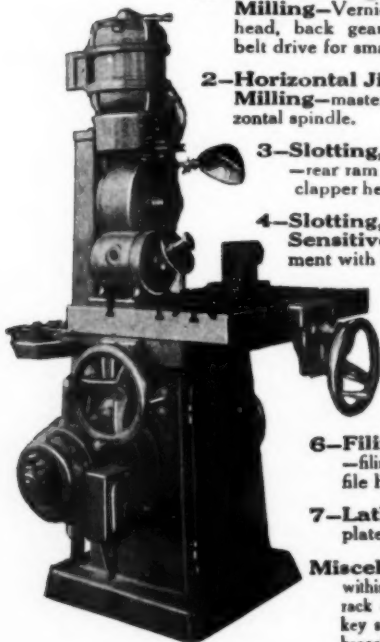
Further information on next pages —→

Machine Co.,

**440 N. Oakley Boulevard,
CHICAGO, ILL.**

The New Hack Universal

Saves Time! Saves Money!



1-Vertical Jig Boring and Milling—Vernier scales, vertical head, back gear for large bores, belt drive for small holes.

2-Horizontal Jig Boring and Milling—master head with horizontal spindle.

3-Slotting, Heavy Duty—rear ram with adapter and clapper head or slotting bars.

4-Slotting, High Speed Sensitive—filing attachment with broach or tool bit.

5-Filing, Heavy Duty—rear ram with adapter and holder for Vixen files.

6-Filing, Sensitive—filing attachment with file holders.

7-Lathe Work—face plate or chucking.

Miscellaneous work within range of machine—rack cutting, gear cutting, key seating, cam cutting, broaching, etc.

Hack Universal Die Making

A Die Making Machine

On These and many other
tool and die operations:

8-Drilling, Heavy Duty -
vertical geared head.

9-Drilling, Sensitive-
vertical head belt driven.

10-Sawing, Heavy Cut-
ting-hack saw frame to
master head and elevated
table.

11-Jig Sawing-filing head
with saw tooth broach.

12-Grinding, Vertical - port-
able grinder fitted to master head.

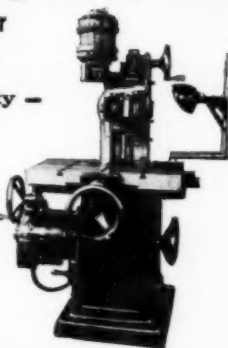
13-Grinding, Cylindrical -
Internal or Contour - portable
grinder fitted to table.

14-Lapping and Honing, Cyl-
indrical or Flat-
standard adapters and
heads used in conjunc-
tion with rear arm.

15-Layout Work -
Graduating - scribe at-
tachment with vernier or
circular table.

See preceding pages for further description

Use Quickmail Coupon No. 32 for full
information on this versatile machine.



Machine Co., 440 N. Oakley Boulevard,
CHICAGO, ILL.

4 RIVETS SET AT ONE TIME AUTOMATICALLY

● Originally developed for a large car manufacturer, the same application is now available to general industry. It sorts, feeds, inserts and sets 4 rivets with a single pedal operation. **STILL LOWER ASSEMBLY COSTS ARE NOW PRACTICAL.** Tell us your problems and send sample assembly with inquiry, if possible.

Single, Double, Triple and Quadruple Rivet Setters for Tubular and Split Rivets

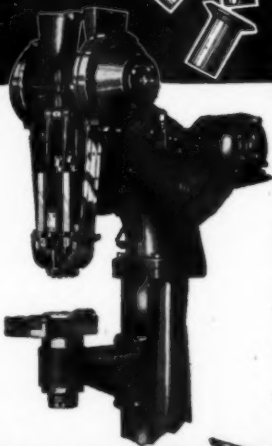
Chicago

RIVET & MACHINE CO.

1855 S. 54th Ave.

Cicero P. O.

Chicago, Ill.



**TUBULAR AND SPLIT
RIVETS—ALL METALS**



Use QUICKMAIL COUPON NO. 56

It will bring you our rivet price list and illustrations of Chicago Automatic Rivet Setters. On specific production problems write letter and send sample assembly or blue print.

Fast Cutting Reamers



Designed to Meet
**MODERN
PRODUCTION
DEMANDS**



PUTNAM HI-SPEED SPIRAL FLUTED CHUCKING REAMERS cut with exceptional speed and never fail to leave a smooth, accurate hole! They're guaranteed for quality of material and workmanship—your assurance of long, dependable service. Furnished with left hand spiral, right hand cut, with both straight and taper shanks. There's no doubt about it... they will meet **YOUR** most exacting production requirements!



Catalog No. 3 lists complete information and prices on Putnam End Mills and Holders, Counterbores, Reamers and Special Tools. Your copy will be sent immediately upon receipt of Quickmail Coupon No. 67.

PUTNAM TOOL CO.

2983 CHARLEVOIX AVE.

DETROIT, MICH.

ACE WELDERS

FOR DEPENDABLE PRODUCTION ARC AND SPOT WELDING

ACE SPOT WELDERS adequately provide essentials to efficient, profitable spot welding service. They are designed to serve manufacturers and fabricators of sheet metal and wire goods; machine, sheet metal or repair shops—anyone interested in reducing costs. Spot welding is more economical than using rivets or bolts. Equipped with many labor saving features.

Dependable Spot Welders
in sizes from 3 K. V. A. up

Priced as low as **\$85.00**



A.C. ARC WELDERS with the ACE Exclusive Feature — SYNCHRO CONTROL

Portable, general purpose welders adaptable to individual requirements of manufacturers and repair shops, offering numerous advantages over gas welding, soldering and brazing. Performance equal to any well designed D. C. welder when used with a good grade of coated rod. The exclusive Synchro Control feature, covered by pending patents, provides perfect regulation of current and voltage comparable to D. C. welders. Made in sizes up to 250 amperes.

Priced as low as **\$135.00**

Investigate economies possible with ACE Arc or Spot Welders.

Send Coupon No. 53 today for full details and prices.

PIER EQUIPMENT MFG. CO.

WELDING EQUIPMENT DIVISION

625 Cross Street,

Benton Harbor, Michigan

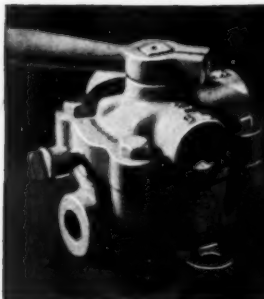
NOPAK

3 and 4-Way Operating Valves

FOR AIR, WATER AND OIL



SHUT OFF VALVE



3 AND 4-WAY VALVE

Sturdy yet simple in construction, NOPAK Operating Valves offer long, efficient operation without maintenance cost, and with absolute freedom from leakage.

The NOPAK flat disc design provides advantageous port spacing, which insures positive, accurate control with both throttling or quick opening action, as desired.

- ★ No Packing
- ★ No Maintenance
- ★ Leakproof
- ★ Protected Disc and Seat
- ★ Quick or throttling action, as desired

WRITE for Bulletin 6

*Use Quickmail
Coupon No. 20*

GALLAND-HENNING
MANUFACTURING COMPANY
2753 South 31st Street Milwaukee, Wisconsin

for Accuracy and Speed
—use *Modern
Equipment*

Milling Machines

Grinding Machines

Screw Machines

Machinists' Tools

Cutters and Hobs

Pumps

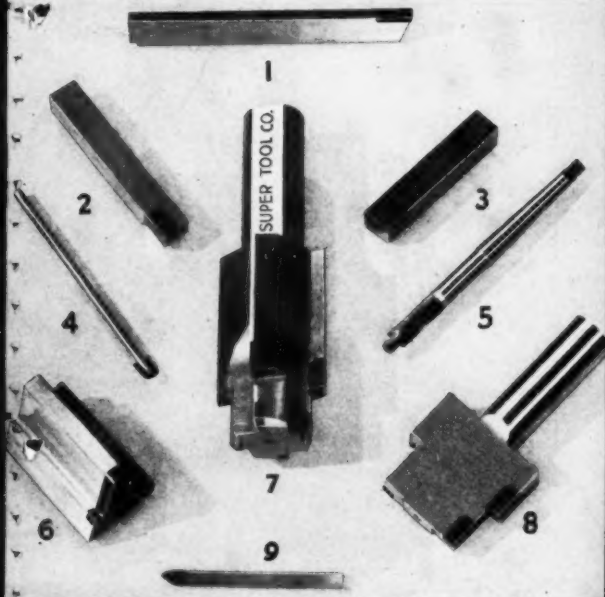
Misc. Shop Equip.



Have you our general catalog
No. 140? A copy gladly
sent on request. Brown &
Sharpe Mfg. Co., Providence,
R. I., U. S. A.

BROWN & SHARPE,

TECO TUNGSTEN CARBIDE TIPPED TOOLS



... reputation earned by
PERFORMANCE

1—Piston Grooving Tool. 2—Standard Turning Tool. 3—Square Nose Tool.
4—Porcelain Counterbore. 5—Combination Drill Counterbore. 6—Form
Tool. 7—Four Fluted Step Reamer. 8—Flat Drill. 9—Glass Drill.

Super Tungsten Carbide Metals insure LESS BREAKAGE — MORE PRO-
DUCTION — GREATER ECONOMY.

Send Quickmail Coupon No. 52 for Catalog, price list,
and complete information.

SUPER TOOL COMPANY
356 EAST CONGRESS ST., DETROIT, MICHIGAN



Like Red
Corpuscles
in a Blood
Stream

Oiled air gives vitality to air tools —keeps them in the pink of condition. Norgren Automatic Sight Feed Air Line Lubricator introduces a fog of oil into the air stream—smooths tool operation, reduces "down time", lengthens tool life.

A pneumatic tool needs little oil, if lubrication is delivered *continuously*. With a Norgren Lubricator on the line it is necessary only to fill the reservoir occasionally. The Lubricator delivers a predetermined amount of lubrication to the tool continuously and automatically while the tool is in use. Easily adjusted. Feed is always in plain sight.

Send Coupon No. 61 for Catalog

C. A. NORGREN CO., (Inc.)
214 Santa Fe Drive, Denver, Colorado



● **DIAMOND SERRATIONS**—they grip tighter under less tension—are an exclusive Sutton feature, but only one of the advantages built into **DIAMOND-GRIP Collets**.

● Accuracy of taper and concentricity of hole and threads are assured by specially designed fixtures and by grinding on hardened arbors. **DIAMOND-GRIP Collets** are ground all over including face and diameter of heel.

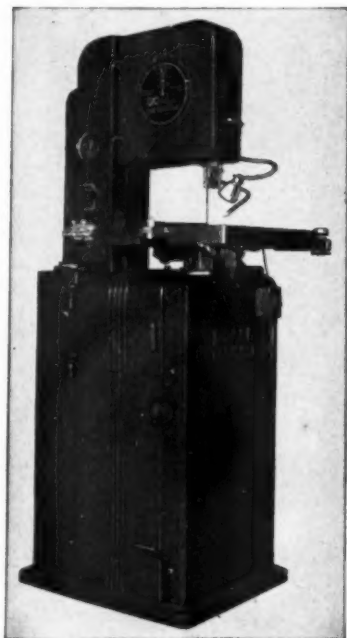
● If you have a fussy job requiring less than .001" run out, **DIAMOND-GRIP Collets** can give your production sure protection.

● Sutton Feed Fingers are perfect companions for **DIAMOND-GRIP Collets**.

Send Coupon No. 59 for Catalog No. 12 showing complete Sutton line of screw machine accessories.

SUTTON TOOL CO., 2836 W. Grand Boulevard
DETROIT, MICHIGAN

METAL MASTER .



DOALL CONTOUR SAWING has an even wider application with this improved combination tool room machine.

Use Quickmail Coupon No. 65 on business letterhead for full information and demonstration.



CONTINENTAL MACHINE SPECIALTIES
1301 South Washington Avenue
MINNEAPOLIS - MINNESOTA

SOUTH BEND UNDERNEATH BELT *Motor Driven* LATHE



Model 117-C, South Bend Underneath Belt Motor Driven Lathe 16" swing by 6' bed including Equipment as **\$869** shown.....

The New South Bend back-geared screw cutting Lathes are used in leading manufacturing plants and machine shops for work requiring the highest accuracy and precision in production and tool work.

Write for general Catalog No. 96 giving details and full specifications. Sent Free Postpaid.

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Size and Type Lathe	Between Centers	Ship'g Weight	Less C'shaft	Motor Drive
9"x3' Workshop Bench Lathe....	17"	320	\$ 85.00	\$116.00
9"x3' Junior Lathe.....	16 1/2"	600	192.00	294.00
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9"x3' Quick Change Gear.....	16 1/2"	655	297.00	399.00
11"x4' Standard Change Gear.....	24"	920	339.00	487.00
11"x5' Quick Change Gear.....	36"	990	408.00	556.00
13"x4' Quick Change Gear.....	16"	1410	443.00	636.00
15"x5' Quick Change Gear.....	24 1/2"	1460	529.00	769.00
16"x6' Quick Change Gear.....	34"	2230	626.00	869.00

SOUTH BEND *Precision* LATHES

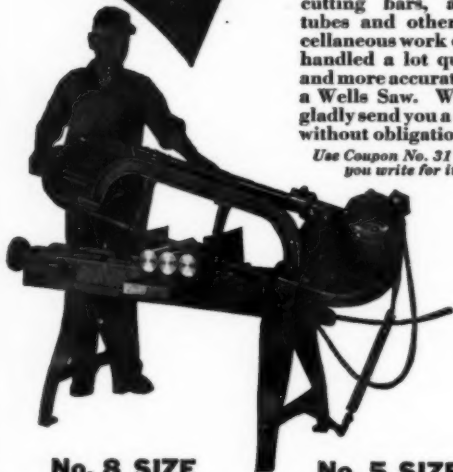
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on the
WELLS
BAND SAW

EFFICIENT
ECONOMICAL
VERSATILE
ACCURATE
FAST

Run down the list of advantages a Wells Band Saw has. Then consider what these features would mean to you. Those jobs of cutting bars, angles, tubes and other miscellaneous work can be handled a lot quicker and more accurate with a Wells Saw. We will gladly send you a folder without obligation.

Use Coupon No. 31 when you write for it.



No. 8 SIZE

8 in. diameter round
or 8 in. by 16 in. flat.

No. 5 SIZE

5 in. diameter round
or 5 in. by 10 in. flat.

WELLS MFG. CORP. Three Rivers,
Michigan

This "Oliver" Self-Contained Surfacer and Polisher

can cut your production costs as much as **50%**



“We use your belt surfer for polishing kick plates, thresholds, bronze tablets, etc. It reduced production costs 50% and does excellent work,” writes one user.



This Machine Grinds and Polishes Flat, Curved, and Irregular Surfaces

The Variety Belt Surfer handles a wide range of work. Extra good on small and medium size pieces of odd shapes — concave and convex surfaces, ornamental metal, mouldings, etc. Easy to operate

This horizontal belt surfer and polisher is compact, designed to finish bronze tablets, aluminum and brass castings, etc. Has features of more expensive machines, but has greater convenience and efficiency on work in its capacity. Table supports tablet 46x26 in. and finishes it in one setting.

Tear out Quickmail Coupon No. 62 for full details on these machines

OLIVER MACHINERY CO., Grand Rapids, Mich.

FOR 100 JOBS IN YOUR SHOP



On an engine lathe. Ample power to drive a $1\frac{1}{2}$ " x $\frac{1}{2}$ " wheel on heat treated steel.

USE THE GRINDER
THAT
"GOES TO
THE WORK"



On a universal milling machine grinding a spiral cutter.



Grinding the radius on a heat treated drawing die. Full set of grinding wheels standard equipment.

This isn't "just another tool post grinder." It is a powerful, high speed tool — $\frac{3}{4}$ H.P. Universal motor, 18,000 R.P.M. — and it can be used for an infinite variety of grinding jobs. With the Stanley Tool Room Grinder and its complete accessories, the jobs you can do are limited only by the ingenuity of

your workmen. It is a Stanley Quality tool in every respect.

Ask your distributor for a free demonstration. Or write for descriptive literature. Stanley Electric Tool Division, The Stanley Works, 141 Elm Street, New Britain, Conn.



Plenty of power for cutting brass, aluminum and similar non-ferrous metals. Re-cessing a templet is easy.

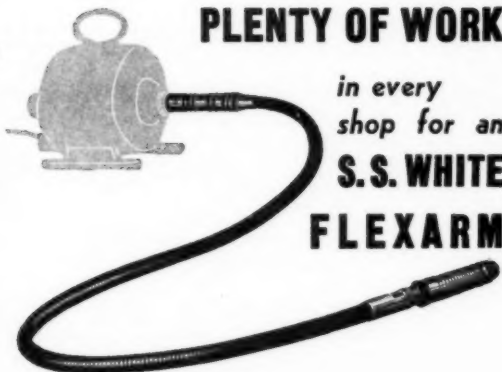
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PLENTY OF WORK

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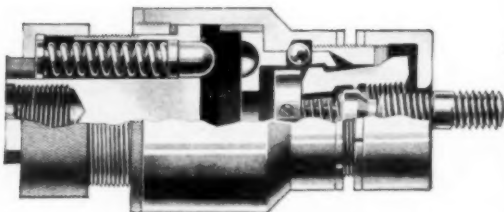
FLEXARM

A FLEXARM is a complete flexible shaft and casing combination with a ball-bearing coupling on one end and a chuck handpiece on the other. Slide the coupling onto the spindle of any available small motor, tighten the set screw, and you have a high-grade portable tool with which you can do die sinking, grinding, boring, reaming, lapping, polishing and a great many other operations.

FLEXARMS come in various sizes suitable for 1/15 to 1/4 H. P. motors. Write for details and prices.

The S. S. WHITE Dental Mfg. Co.
INDUSTRIAL DIVISION

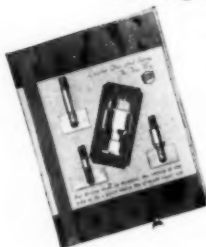
10 East 40th St., Room 2310 H. New York, N. Y.



TITAN STUD SETTER

Sets Studs to a Uniform Degree of Tightness without Strained or Mutilated Threads

The Titan Stud Setter is a new controlled drive type for driving stud bolts, being full automatic in loading and releasing. It is a power-driven unit adaptable to all types of drill presses, air or electric tools, both portable and stationary. Operates at high or low speeds. Positive in driving and automatic in releasing. Studs may be set to any predetermined degree of tightness.



The possibilities of increased production with this tool, due to its capacity, speed range and service, plus the added economy that its safety features assure by automatic operation—all contribute toward making it a tool worthy of investigation and profitable to use.

**TITAN
TOOL
COMPANY**



**FAIRVIEW,
PENNA.,
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Unique Internal Gage being widely adopted

**Unerring accuracy to $\frac{1}{2}$ of $\frac{1}{10,000}$ th
independent of operator's skill**

Great favorite with users of ball bearings

An ordinary workman equipped with COMTORPLUG can measure with half ten-thousandth precision any part of a hole, to the very bottom. At production-inspection speed he can detect not only size variations, but also irregularities hidden from solid plugs, such as barrel shape, out-of-round and back taper. An impressive list of makers of electric motors, airplane engines and other precision-built equipment use COMTOR-PLUG, especially for ball bearing housings.

Send Coupon No. 15 for Bulletin

—The COMTOR Co.—
WALTHAM, EST. 1928 MASS.

A RANGE OF A MILLION VARIATIONS OF SPEED

BETWEEN THE HIGH AND LOW LIMIT

Instantly Available With The

NEW LENNEY VARIABLE SPEED TRANSMISSION



The Answer to Your Transmission Problem?

This handy unit is worth investigating for it HAS satisfactorily solved the transmission problem in many plants. It gives a smooth, quiet, vibrationless flow of power, adjustable to a fraction of a revolution per minute with reduction from $2\frac{2}{5}$ to 1 to 8 to 1. Speed is constant even under severe overload. The Lenney Automatic Loading Device prevents slippage. Neat in appearance, with quality construction—built for long life without attention. Can be set to any speed while running or idle.

Built in Motorized and Unit Types from $\frac{1}{8}$ to 5 H. P.

Write Today for Complete Information and Prices

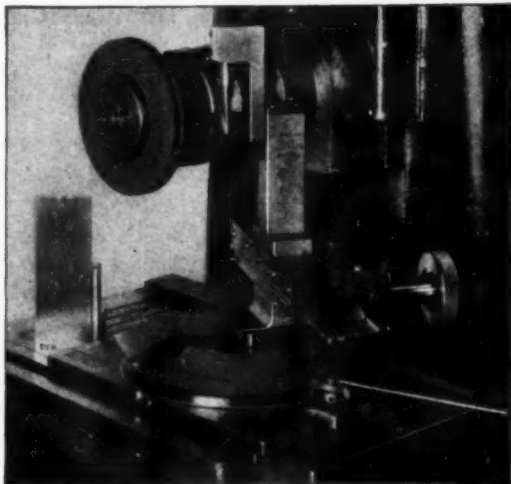
The LENNEY MACHINE & MFG. CO.
WARREN, - - - - - OHIO

● Territories Available to Agents of Proved Ability ●

The Vinco Angle Tangent to Radius Dresser for

Internal, External and Surface Grinding Machines

Patented June 5 1934, other patents pending



ACCURACY AND ECONOMY

The Vinco Dresser was designed for the accurate and economical dressing of angles and radii tangent on abrasive wheels. It functions perfectly for it has the basic patented feature of dressing angles and radii from the same axis without moving the diamond, angles and radii are always tangent. Angles are accurate for the Index Plate and Vernier are graduated on a Vinco Master Dividing Head to a one ten thousands of an inch accuracy. It has adjustable stops, the index plate can be set at any desired angle. The cut above shows the Dresser fitted with a Vinco Special Attachment that permits the dressing of complete half circles from .050 to .565 radii. The Dresser fitted with the regular diamond will dress all angles and radii tangent. The Vinco Dresser is precision made, all parts subject to wear are hardened, ground and lapped. It is guaranteed to be satisfactory.

Send Coupon No. 48 for Descriptive Circular

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FOR B & S

AUTOMATIC SCREW MACHINES



PRICES ON HARDENED CAMS CUT TO
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	No. 00	No. 0	No. 2	No. 4	No. 6
Set of 3	\$6.20	7.65	9.35	19.25	24.35
Set of 2 (Lead & Cross Slide)	5.05	6.15	7.45	14.70	19.25
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Set of 4 (1 lead 3 Cross Slides)	8.10	9.90	11.90	-----	-----

IF LAYOUT IS TO BE FURNISHED BY US, THERE
IS AN ADDITIONAL CHARGE OF:

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48 HOUR SERVICE ON COMPLETED CAMS
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BANNER MANUFACTURING CO.
1873 Clybourn Ave., CHICAGO, ILL.

PROCUNIER



HIGH SPEED

PRECISION

TAPPING ATTACHMENTS

WITH THE NEW

"TRU-GRIP" TAP HOLDER

The most sensible tap holder that ever gripped a tap.

ONLY Procunier tappers have the Patented Three-Point Balanced heat treated Gear Reversing Mechanism. This special feature distributes the pull among three gears instead of one, reducing strain and wear to the minimum and giving longer life.

ONLY Procunier tappers have the new "Tru-Grip" Tap Holder.

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14 S. Clinton St., Chicago, Ill.

FREE TRIAL OFFER

Combination Drill Table and Vise



GUARANTEED To Save Its Cost in Labor Every Six Months

To save time with quicker and more accurate set-ups in your shop, install a Modern "Combination." It's safer and easier to use, handles difficult jobs without blocks, clamps or awkward plates and helps to prevent accidents by eliminating dangerous holding by hand. Manufactured in models to fit every drill press. Write today for complete information on the "Combination" and our 30-day trial, giving dimensions of the table you wish to replace.

30-DAY FREE TRIAL

Costs you nothing. If you are not satisfied in 30 days, we will pay the freight both ways.

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MODERN MACHINE TOOL CO.
JACKSON, MICHIGAN

Manufacturers of the "Modern" Cutting-Off Machine

END MILLS

for All Purposes



SHEAR CUT END MILLS

The line of Progressive Shear Cut End Mills contains types and forms for practically every purpose. For economical work, accurate results and lasting satisfaction, specify Progressive End Mills for every job. Their scientific design and careful construction guarantees finer work, for constant attention is given to their manufacture to insure accurate workmanship and the best quality of materials.



Consult Our Designers on Special Problems

Our years of experience in the design and manufacture of special end mills is at your service without obligation. When you encounter a difficult problem, send your blueprints to us.

Use Quickmail Coupon No. 58 when you write for your copy of the Progressive catalog.

PROGRESSIVE TOOL & CUTTER CO.
FERNDALÉ, MICHIGAN

ONE MAN can load and center heavy coils in less than two minutes with

LITTELL

Automatic Centering Reels

Littell automatic centering reels assure faster and more accurate blanking and forming on punch presses for both hand feeding and automatic feeding of stock.

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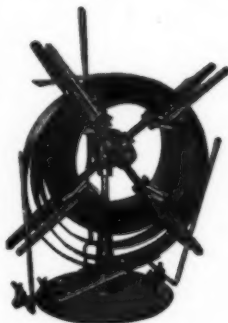
Centered coils turning on ball bearings revolve easily and keep the press going at capacity speed. Littell coils will never slow up your production by jamming or dragging.

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One man can easily load and center heavy coils regardless of the difference in inside diameters between one coil and the next.

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These coils are made in three sizes, in both plain and motor driven types. Write today for circulars showing all types and sizes.



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**No. 3 for 300 lb. coils,
No. 5 for 600 lb. coils,
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No. 41 when you send
for Littell Circulars*

F. J. LITTELL MACHINE CO.

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Manufacturers of Punch Press Feeds and Reels

HITCHCOCK'S *Machine Tool* **BLUE BOOK**

**Selected
Circulation**

**25,000
Monthly**

AUGUST, 1937

THIRTY-SECOND YEAR

SUMMER DULLNESS NEARLY OVER

The index of machine tool orders fell from 208.5 in May to 191.8 for June.

There probably was a further decline in July, but the figures for that month are not yet available.

We are now entering the month of August, and the summer dullness will soon be a thing of the past.

All indications point to the resumption of large scale buying upon the return of cooler weather.

Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

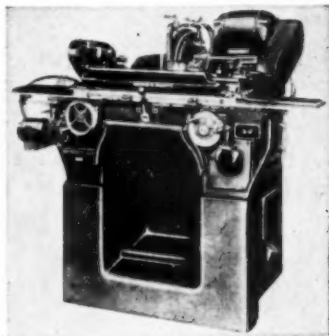
Chicago, Ill.

Consult the Classified Finding Index for your requirements

Brown & Sharpe's New No. 5 Plain Grinding Machine

Rapid cylindrical grinding of duplicate small parts to close limits on a production basis is the field for which Brown & Sharpe Mfg. Co., Providence, R. I., offer their new No. 5 plain grinding machines. Available in two capacities, 3"x12" and 3"x18", the shorter-table machine is recommended for installations where the work is not over 12 inches in length and floor space is an important factor.

As will be noted from the illustration, controls and adjustments are grouped at the front of the machine, to be at hand from the operating position. The recessed base affords ample leg-room for the operator to sit at the machine, while the table height and location of the controls provide for equally efficient operation from a standing position.



Headstock and coolant pump are started and stopped electrically by rotation of the cross feed hand wheel, starting automatically when the grinding wheel is advanced toward the work and stopping when the wheel is withdrawn to unloading position. This combined with the headstock brake aids materially in maintaining high production schedules. A lever permits cutting out the headstock and coolant pump motors during wheel-truing or setting-up.

Separate motors drive the wheel spindle, headstock, table and coolant pump and a push button station at the front controls starting and stopping of the entire machine. All control units are built into the machine,

(Continued on Page 48)

DO IT—

Better—Faster—for Less!

with **ODIN UNIVERSAL**

**Precision Vises
Swivel and Plain**

with Interchangeable Jaws and
Hardened and Ground Parallels

They quickly pay
their costs in savings
on High Tool Costs
—Expensive Fixtures
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ings—Extra Set-Ups.

Investigate the
money saving
possibilities of
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No. 71 for full facts
and prices.



Let us show you how to make cheaper and
better jigs and fixtures at a greatly reduced
cost—with a great saving in time.

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110 S. Dearborn St.,

Telephone
Franklin 3281

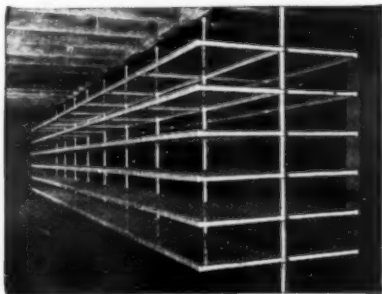
being well protected yet easily accessible.

An automatic oiling system lubricates the wheel spindle bearings, the cross feed screw and full nut, the table and cross slide ways and the table driving mechanism. The coolant tank is integral with the bed casting and has removable cover and baffle plates. The centrifugal motor pump is also removable, to facilitate cleaning of the coolant tank.

New Storage Rack Has Wire Mesh Construction

Superior Wire and Iron Products, 1059 E. 76th St., Chicago, have developed a new storage rack claimed to have several distinct advantages.

Heavy wire mesh woven to expose an absolutely flush working surface for stock handling ease, gives complete ventilation, prevents warping or moisture accumulation, allows no dust or dirt accumulation and permits the filtering of light through complete struc-



ture for better working conditions. Shelves are adjustable to any position without trouble, allowing complete flexibility of equipment for changing stock requirements and permits a more compact stock arrangement. Center post construction allows access to material from any direction without hinderance. Built to fit any material handling requirements, Superior ventilated rack may be obtained in any size and is standard equipped for stationary, portable or mono-rail installation.

HERE'S PROOF of the power and speed of SKILSAW'S new low priced **DEFENDER DRILLS**



**1/2" DEFENDER
\$35.00**

**1/4" DEFENDER
\$19.50**

THIS 1/2" DEFENDER DRILL
drilled a 1/4 in. hole in 1/4 in.
stock in only 28 Seconds!
drilled a 1/2 in. hole in 1/2 in.
stock in only 40 Seconds!

THIS 1/4" DEFENDER DRILL
drilled a 1/4 in. hole in 1/4 in.
stock in only 13 Seconds!
drilled a 1/2 in. hole in 1/2 in.
stock in only 22 Seconds!

Never before such performance... such quality construction and engineering in low priced drills! Bearings are ball and self-lubricating Oilite bronze. Motor has extra overload capacity for cool running and longer life. Special alloy steel gears, helical cut for quiet operation. Die-cast alloy frames for strength and lightness. Compare their specifications, power and speed and you will see why DEFENDER Drills are the biggest drill "buy" on the market.

See Your Distributor and Write for Our Catalog
Use Quickmail Coupon No. 16

SKILSAW, INC. 3318 ELSTON AVE., CHICAGO
214 E. 40th St., New York — 52 Brookline
Ave., Boston — 312 Omar Ave., Los Angeles

The New Hack Universal Die Making Machine

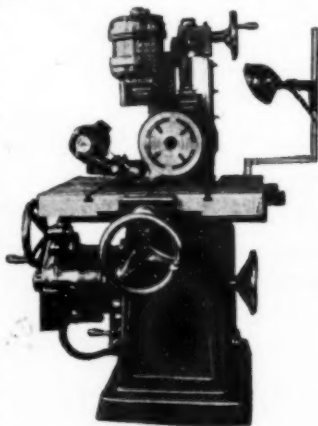
With a year of actual working tests, substantial refinement and improvement has produced Model A-1 of the Hack Universal Die Making Machine, giving it increased usefulness in the tool, die, mould and metal pattern field.

Requiring a floor space only four feet square, it is asserted that individual machines necessary to perform all of the types and classes of work handled by the Model A-1 would fill a fair-sized shop.

Stripped of removable units, the machine consists of a base, a spacious compound table, a reciprocating rear ram adjustable for stroke or position, or capable of being locked stationary. Attachments are applied to a master head fastened to this ram. In the head is a back geared milling spindle of liberal dimensions vertically adjustable within the ram, embracing the functions of a horizontal milling machine. The head also serves as a lathe spindle.

Two distinct types of cutting performance are provided—heavy duty and sensitive. Reciprocating and rotary motion are incorporated. Many operations are handled with a minimum number of attachments which may be installed easily and quickly.

Once set-up a job need not be removed until all of the operations are completed. For example, a die block is scribed with the scribing tool head by means



(Continued on Page 52)

ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE



**Machine
tools seldom
wear out—
you're racing
Obsolescence**



Few machine tools ever wear out. They are made obsolete by newer developments—are replaced while still in good running order by later, more efficient equipment. The “junking” of good machine tools before they have delivered their full capacity is a waste that in many cases can be prevented by the use of **ARMSTRONG TOOL HOLDERS**.

With **ARMSTRONG TOOL HOLDERS** you can step up speeds and feeds **safely**—can get more from every machine hour, from every lathe, planer, slotter, and shaper. Drop forged from special steels, stronger and absolutely dependable, **ARMSTRONG TOOL HOLDERS** will stand up indefinitely at speeds far above the customary 150 f. p. m. established in the day of forged bar tools.

You can build your Armstrong System, Tool Holder by Tool Holder, from the stocks of your nearest Mill Supply House. You can make the change over from haphazard tooling methods to dependable **ARMSTRONG TOOL HOLDERS** without disrupting production or special appropriation. Then you can step up the hourly production, cut cutting costs, increase output and get more useful life from every machine tool. Send Coupon No. 6 today for a B-35 Catalog . . . and order as needed by number.



Armstrong Bros. Tool Co.

“The Tool Holder People”

308 N. Francisco Ave., Chicago, U.S.A.

**Eastern Warehouse & Sales: 199 Lafayette St., N. Y.
San Francisco, London**

of the vernier attachments, giving accurate boundary lines and centers. Substitutions of the vertical head for the scribing head requires but a few moments. Then all of the holes may be jig-bored in true relation to the boundary lines. By installing a saw blade in the slotting attachment, the core of the die may be sawed out or slotted as required. Rough filing follows with this same attachment, screw feed being used until the opening is of the required size. Clearance is then filed all around. Screw holes and reamed holes are drilled at the same time as the jig boring. Time is saved by combining the stripper plates and punch plates with the die blocks.

Many short cuts are obvious, such as use of the rapid cutting hack saw attachment, reducing the finishing on such sections to a power filing operation instead of the customary shaper or milling set-up.

The vertical head is rotatable throughout a circle. Vertically 8 speeds are provided—4 back geared and 4 high speed. There are 4 speeds in the angular position, all back geared. The high speed sensitive slotting head is associated with this spindle, and used for filing, lapping, etc.

A hack saw frame using standard blades is attachable to the master head and used with an elevated table which is interchangeable with the removable center plate.

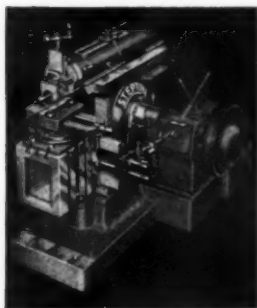
A 10 inch face plate fits the master head spindle, also a 6 inch—3 or 4 jaw chuck. Stud turning, boring and facing are done in combination with a compound slide. Bore grinding of round dies or irregular openings is handled in this way.

Stroke adjustment of the rear ram is from $\frac{1}{2}$ " to $3\frac{1}{2}$ "—90 strokes per minute. A 3 h.p. 60 cycle, 3 phase motor drives the ram and a $\frac{3}{4}$ h.p. unit powers the master head.

With regular equipment 15 different cutting operations are contemplated, which it is said may be doubled with auxiliary adapters. A standard grinding attachment is used vertically or horizontally for surface, bore, cylindrical tool and cutter grinding, easily handling plug, ring or snap gage grinding. An assortment of file holders and files, large and small, permits filing in heavy duty, medium or sensitive service.

Further information may be obtained by writing direct to the manufacturer, the Hack Universal Die Making Machine, 440 N. Oakley Blvd., Chicago.

POWERFUL MACHINES for HEAVY WORK

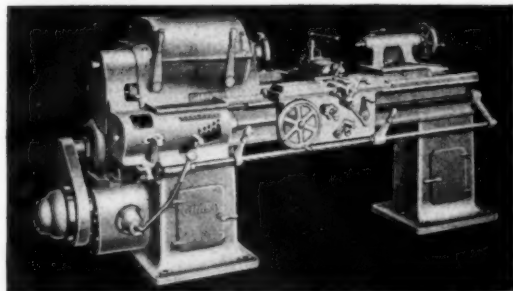


STEPTOE SHAPERS

Force feed continuous lubrication, heavy construction and Timken bearings throughout insure rigidity, accuracy and long life. Centralized controls are within easy reach of the operator at all times.

Instantaneous feed and speed changes may be made with fingertip control while the machine is running.

Send today for catalog No. 130.



CHARD Twelve-Speed All Geared Lathes

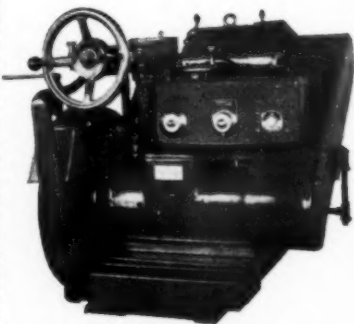
Precision Timken or plain bearing spindle—Instantaneous start or stop of spindle—12 speed changes in 15 seconds—Heat treated and hardened gears run in oil in speed box—All shafts mounted on ball bearings—Powerful, accurate, and easy control—Built in 16", 18" and 20" standard engine lathes, manufacturing lathes and tool room lathes. ● *Send today for full information.*

Western Machine Tool Works
HOLLAND, :--: :--: MICHIGAN

Bowgage Independent Wheel Head

Advanced by its makers, the Fitchburg Grinding Machine Corp., Fitchburg, Mass., as a new method in grinding, the Bowgage Head is a self-contained unit for automatic grinding wheel feed, with all its movements and controls within itself. Started by one push button, the head has rapid traverse slow grinding feed, grinding dwell or spark out, and rapid return to starting position.

Control of grinding feed is by a hydraulic metering valve through a dial on the panel. A Telechron clock-controlled time delay switch governs the dwell time. Another graduated dial operated by a small hand wheel can be set for the



amount of stock removal, with a maximum of $\frac{1}{8}$ " on the diameter. The rate of rapid traverse is constant and the amount is set at the factory anywhere between zero and five inches.

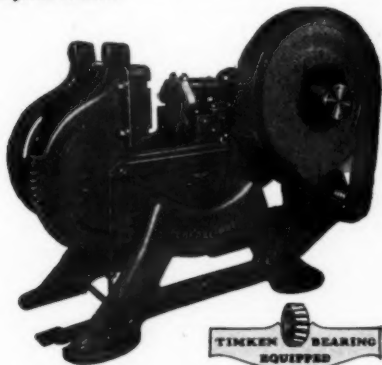
The principle of this wheel feed is a toggle, and the toggle action is obtained by the movement of a leaf spring located horizontally, between the wheel head and the wheel head slide. One end is attached to the slide and the other to the head, under tension and in a bowed position when the wheel head is at the start of the feed. By hydraulically flattening out the leaf spring by a vertical movement, the spring elongates and this elongation results in the wheel head moving forward for the feed.

It is pointed out that in this movement there are no joints or bearings to eventually produce back-lash.

(Continued on Page 56)

FEDERAL PRESSES

All models of FEDERAL heavy duty presses are equipped with Timken bearings to increase efficiency and production at the lowest possible upkeep cost. Roller bearings in the flywheel are adjustable for wear, eliminating the need for expensive rebuilding and repairs after long use and preventing damage to the clutch and control mechanism. Non-repeat safety type clutch and tripping device, also standard equipment on FEDERAL models, guard against accidents to operators or dies should momentum carry the crankshaft beyond center.



FEDERAL HORIZONTAL PRESS

Built in various sizes especially suitable for the application of automatic roll or pinch feeds. Constructed along the same practical line as other Federal heavy duty Presses.

**FEDERAL
PRESS CO.**
ELKHART, IND.

Send Coupon No. 66
for illustrated in-
formative circular.

Furthermore, the feed motion is relatively fast at the start of the feed and gradually slows down at sizing position, which makes an ideal grinding condition. As the wheel is moving into the final sizing position, the ratio of the vertical movement to the horizontal feed movement is approximately 250 to 1. Consequently, errors in the stopping position of the vertical movement are said to be infinitesimal in the final horizontal position for the stop-sizing method of grinding.

The head is built for either right or left hand wheel mounting and since the unit is independent it may be placed anywhere on the machine. The grinding cycle may be changed by a touch of the dials for whatever conditions the operator meets.

The feed movement may be controlled in ten thousandths of an inch. If the wheel feed dial is moved one ten thousandth of an inch, it gives one ten thousandth of an inch indicator reading on the head movement, which as the makers point out, eliminates one more error in holding to the precise size requirements of tomorrow's grinding machinery.

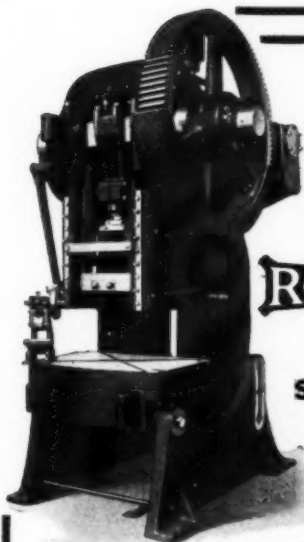
On request, the manufacturers will gladly send you full information pertaining to this grinding head.

New Armglo Bench Type Welder

A new, compact and efficient bench type welder is announced by the Armglo Company, Milwaukee, Wisconsin, which is rated by its manufacturers as being suitable for both production and occasional welding. The new units will be made in 2, 3 and 5 KVA sizes. Prices are said to be reasonable.

The general characteristics of the new machine may be seen in the accompanying illustration, which shows the welder set up with foot pedal control for production work. Complete information may be had without obligation by writing to the manufacturers and requesting the new circular on this machine. Quickmail Coupon No. 38 will save time in addressing your inquiry.





Built for
**EXCEPTIONAL
SERVICE**

ROCKFORD

**INCLINABLE
AND
STRAIGHT SIDE
PRESSES**

**in all
sizes**

THE ever increasing use of heavy sheet metal stampings nowadays in place of castings and the numerous parts formerly made on screw machines, requires presses of greater power and capacity, and that's just what you get in the ROCKFORD.

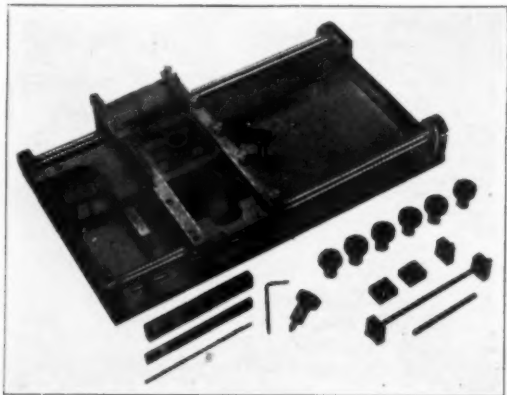
Rockford Presses are sturdily built of the best materials and incorporate many features that are the result of years of experience in building presses of various types. You can depend upon a Rockford—for it is designed to maintain exact adjustment throughout long runs and under heavy duty.

Write for Catalog

ROCKFORD IRON WORKS
ROCKFORD, ILLINOIS

The Micro-Precision Universal Jig

The tool room is one place where time and labor saving equipment pays real dividends, for the expert tool makers and machinists are high priced men—and regular production is often delayed or suspended until the completion of work on new fixtures, tools or jigs. Any material cut in tool room labor costs reflects savings which will speedily pay for time-saving equipment.



These claims are offered for the new Micro-Precision universal jig, produced by Henderson & Kaye, Batavia, Ill., and already in use by some of the leading industrial companies.

A general idea of the new fixture may be gained from the accompanying illustration of the jig, which is said to speed up flat work, making it only a matter of seconds. Center points are quickly located with the two special micrometer heads. The drill is supported and guided and no layout lines are required for drilling. No special surface or edge preparation is necessary. Layout lines may be scribed in accurate relation to holes drilled on the same set up and may be light or heavy. Right angle layout work is done independently, and gauge rods are held to less

(Continued on Page 60)

GOOD DIES

increase profits!

Illustrated are only a few of the hundreds of types of press brake dies we have produced during the past twenty years of die making.

Equipped to produce any type of press brake die you may require, we invite your inquiries.

TRADE
Verson
MARK

Our DIE MANUAL BD-36 containing about 800 illustrations of press brake dies and shapes they will produce is available for distribution now.

TRADE
Verson
MARK

If you do not have a copy, send for one. There is no obligation and we are certain you will find it of great value.

We manufacture a complete line of press brakes and are the originators of ALL-STEEL WELDED CONSTRUCTION in the manufacture of punch presses.

THE ALLSTEEL PRESS CO.
12017 So. Peoria St., CHICAGO, ILL.

than plus or minus .0001".

This new jig is offered as a decided time-saver in setting-up, laying-out and drilling to accurate centers.

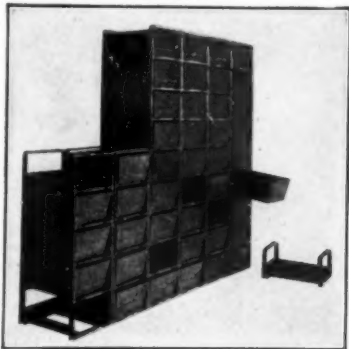
The makers will make demonstrations on request and will permit 10-days' free trial on their standard model, which has a capacity of 14x8x2 inches.

A larger model is also available on order with a capacity of 14x12x3 inches. Other special sizes will be made to order.

Convenient Storing of Parts in Process

Designed originally for orderly arrangement and easier handling of stockroom boxes, the sectional steel racks known as "Stackracks" are also being used for parts storage in process of machining or assembly, according to their manufacturer, Stackbin Corp., 48 Troy St., Providence, R. I.

Suggested by the users themselves, this application of "Stackracks" takes advantage of the easy set-up, rigidity and easy disassembly of the racks, which may be set up quickly without tools anywhere in the plant, and just as easily taken down and moved elsewhere.

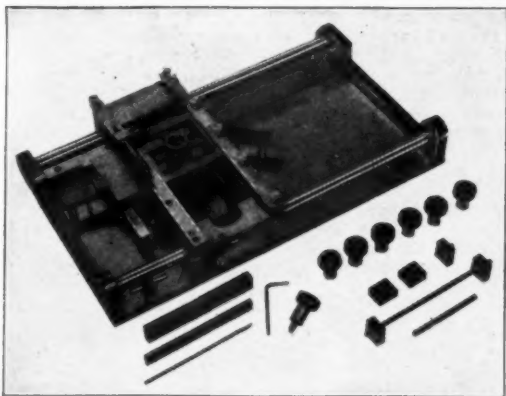


Built in single units, each of which holds a tote pan, they save space as well as time in piling or unpling pans, and permit the use of lighter, cheaper pans. Units are built to fit tote pans or boxes of any size, and any number of units may be used to provide a "Stackrack" of any size or shape.

Literature on these handy units may be obtained by writing to the manufacturer, using Quickmail Coupon No. 37.

MICRO-PRECISION UNIVERSAL JIG

MAKE A JIG BORER OUT OF YOUR DRILL PRESS



As Simple as Setting and Reading a Micrometer

Already in use in the tool rooms of many leading industrial companies. Saves valuable time of expert machinists and tool makers—assures speed and accuracy. From a dollars-and-cents standpoint you cannot afford to be without this newest precision layout and drilling aid.

**10 DAYS'
FREE
TRIAL
ON THIS
MODEL**

Standard model, capacity
14 x 8 x 2 inches. 10-Days'
Free Trial on this Model
Only.

\$185

F. O. B. Batavia

Larger Model, 14x12x3—\$215—Special sizes made to order. Send Quickmail Coupon No. 33 for illustrated leaflet giving complete information.

HENDERSON & KAYE, Batavia, Illinois

"Swing" Is the Latest In Indicator Holders

"Swing" is one of the late trends in popular music. Whether you like it or not, you have to admit that musically it goes places.

Chicago Dial Indicator Co., 180 Wacker Drive, Chicago, have made a literal application of "Swing" to their Geneva Universal Indicator Holder. As is evident from the illustrations, this interesting new holder permits the indicator to "go places".

The manufacturers offer the new Geneva as a long step forward in indicator holders—a simple, compact, easy-to-use holder that speeds operations.

They assert that an almost unbelievably wide range of settings is afforded by the universal ball joint construction.

The universal movement is controlled by a single knurled thumb nut which permits the indicator to be set instantly. Tightening the knurled thumb nut compresses a cupped fiber washer against the ball joint, thereby clamping the indicator in the position desired.

The ball joint has a $\frac{1}{4}$ -28 thread to take round, square or any other type shank.

With the shank in one position, the indicator point is free to move to all angles. The technical description is that the in-

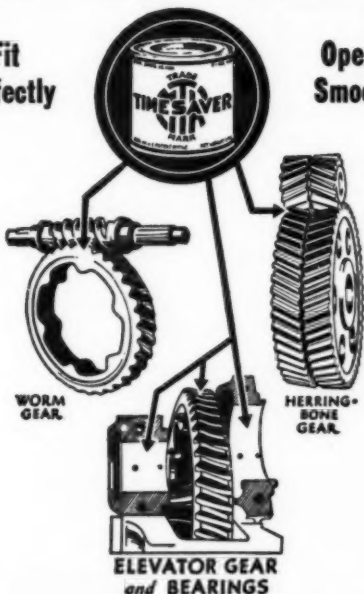


(Continued on Page 64)

TIMESAVER LAPPED GEARS

**Fit
Perfectly**

**Operate
Smoothly**



Timesaver Compound quickly removes high spots. Absolutely safe—will not imbed in any metal or continue to cut.

Economical—eliminates hand operations.

Grades for all metals.

Write for samples and literature.

TIMESAVER PRODUCTS COMPANY
33 S. Desplaines St., Chicago, Ill.

indicator can turn 180 degrees on the inner section of the ball joint and 360 degrees or a complete circle when in any position on the 180 degree arc, as illustrated.

Incidentally, the new holder may be used with other than Geneva indicators.

An internal attachment is also available for Geneva indicators providing a means for testing internal and other surfaces which cannot be reached with the regular plunger. It fits the stem of the dial indicator and is held securely by the knurled clamp screw, and measures internally to a depth of 1 1/4 inches.

On request, preferably on your business letterhead, the manufacturers will gladly send you an illustrated leaflet giving full information pertaining to Geneva indicators and the new Geneva universal holder.



Cutting Spiral Milling Cost With Portable Precision Grinder

It is related that a Racine shop foreman ingeniously solved an unusual milling job recently. Confronted with the task of economically milling a spiral in 50 aluminum end caps, he mounted a precision portable grinder on a milling machine and a high speed cutter was chucked into the grinding quill. The setup was easily made as shown in the illustration, and the job worked out because the cutter was driven at the correct work speed for milling aluminum. The equipment used included a Dumore No. 5 grinder with "D" quill, Milwaukee miller and a 1/8" fishtail milling cutter.



WITTEK

AUTOMATIC

Roll Feeds

For Every Size and Make of Punch Press

**FAST
ACCURATE
AUTOMATIC
SAFE**



Prevent Punch Press Accidents

One sudden accident may wreck a year's profits on a particular machine. Protect yourself and your operators by installing Wittek Automatic Roll Feeds. They feed automatically any stock from coils in lengths from 0" to 24" per press stroke and increase production at a saving in time, operating costs and dies. Single roll, double roll and compound type with straightener are easily installed on any make of punch press without alteration.

Wittek Reel Stands

Automatic, Self-Centering, Ball-Bearing. Adjustable to any height, balanced at any angle, 500 lb. capacity. Prompt deliveries from stock. Also made in four other models.

Write today for Bulletin "HF" giving complete details and specifications of WITTEK Automatic Roll Feeds and Reel Stands.

Use Quickmail Coupon No. 25



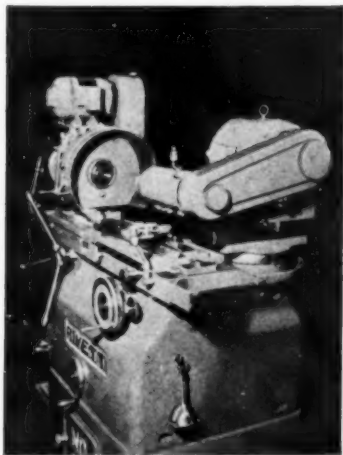
WITTEK MANUFACTURING COMPANY

4305 9 W. 24TH PLACE

CHICAGO, ILL.

No. 112 Rivett Internal Grinder

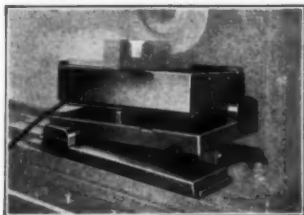
Wide range of application, easy access for set-ups and adjustments and troubleproof construction—these are outstanding attributes claimed for the new No. 112 internal grinder produced by Rivett Lathe & Grinder, Inc., Brighton, Boston, Mass., and shown in the accompanying illustration.



Primarily built for medium and large tool room work, straight, bevel, two angle or straight and bevel grinding at one setting, its heavy construction and large slide areas promise long-life accuracy. With low speed spindle carrying a wheel up to 6 inches diameter by $\frac{1}{2}$ inch face, it may also be used for external work. Simplicity of design is said to make it especially effective on a wide variety of parts, and practical for any mechanic to operate.

Single bevel or single taper work is ground by swivelling the workhead or the table topslide. The swivel cross slide is a unique feature, and by swivel-

(Continued on Page 68)



SHORT SHORT STORIES ABOUT The Magna-Sine

THEY REMODELED IT THEMSELVES!



A few of the first Magna-Sines had been built and sold when it was discovered that a change in the magnetic coils would improve their efficiency. It was decided to recall all of the Magna-Sines that had been delivered.

An Eastern manufacturer was notified of the new development and was asked to return his unit to the factory. This was his answer: "Our Magna-Sine is now in constant use. We can't possibly get along without it—even for a few days. Send us the new coils. We will install them ourselves."

That's only one of many instances where the Magna-Sine has proved invaluable for innumerable grinding operations requiring single or compound angular set-ups. Once you have used it on YOUR grinders, you too will wonder how you managed to get along without it. Quickmail Coupon No. 63 will bring you full information. Or, if you prefer, we will gladly arrange a practical demonstration on your own grinders—without obligation, of course.

The MAGNA-SINE

ROBBINS ENGINEERING CO.

639 Mt. Elliott Avenue,

Detroit, Michigan

ing this to the desired angle and setting the grinding spindle on the center line of the machine a straight hole may be ground using power reciprocation of the table. Then by disengaging the latched lever on the gear box the power reciprocation may be thrown off, and an angle at the mouth of the hole may be concentrically ground without rechucking, by traversing the cross slide through its hand wheel. By swivelling the table top slide a taper hole and a bevel may be ground.

For small or medium lots the No. 112 is said to be more economical than an automatic gauging machine and it is preferred by many manufacturers for experimental and development work.

Vibrationless support to the grinding spindle and speeds necessary for small hole work are achieved by having the workhead and work reciprocate while the grinding wheel remains stationary. The workhead is mounted on a shoe and scraped to the upper table, being clamped in any desired position by two T-bolts in a T-slot. Base of the workhead is graduated to swivel 90 degrees either side of center so the head may be set for taper grinding steeper than obtainable by the 5 degree swivel of the table.

Three selective spindle speeds are afforded by an individual motor drive. Spindle mouth is ground for Rivett 6-N. S. 1-inch collet capacity collets and step chucks operated by screw draw-in spindle or lever chuck closer. Jaw chucks, face plates and other fixtures may be mounted on the threaded spindle nose.

A bracket carried on the cross slide mounts the grinding spindle, driven from a 2 h.p. 3500 r.p.m. motor. High and low speed spindles are available. Cross slide carrying the grinding spindle may be swivelled in any position up to 90 degrees right or left from center. Selective hand or power cross feed is transmitted to the cross slide in any position.

Table is mechanically reciprocated with a slight retardation of motion as the table approaches its center of stroke, accelerating immediately after the central point is passed. It is asserted that this produces straight ground holes, eliminating bell-mouthed holes. A gear box on side of base provides 18 selective speeds of table reciprocation.

The Rivett tipover diamond fixture is used for tru-

(Continued on Page 70)

MARSCHKE

HEAVY DUTY GRINDERS AND BUFFERS



Don't compare the price of the 1 H. P. MARSCHKE BENCH or PEDESTAL TYPE TOOL GRINDER with machines of similar capacity unless you compare details of design accounting for convenience and safety of operation. Compare, also, the material specifications and standards of workmanship. The Marschke is a quality product and quality is important because *the best is always the cheapest in the end.*

Let us send you the details of this small machine, together with a catalog show-

ing **70 different Grinder and Buffer specifications** of MARSCHKE GRINDERS and BUFFERS—formerly made by Van Dorn, Black & Decker—now being manufactured by

VONNEGUT MOULDER CORP.

1805 MADISON AVENUE, INDIANAPOLIS, INDIANA

ing the wheel. Once the proper hole is ground the diamond truing fixture may be set to true the wheel for duplicating the original grind.

All moving parts are fully enclosed. All drive bearings, reciprocating mechanism and table ways are automatically lubricated by the Blanchard Pulsolator System, comprising a central pumping unit and individually adjusted pressure feeders for each bearing.

A copy of bulletin 112A describing this machine will be sent on request.

Covel Swivel Head Surface Grinder

Covel Mfg. Co., Benton Harbor, Mich., announce a new swivel head surface grinder No. 72-A with some unique features. The unit, which is illustrated, is equipped for grinding all kinds of milling cutters (including spirals), counterbores, special tools and irregular surfaces.

Centers or fixtures can be mounted on the swivel table, which is graduated on one end in degrees and on the other end in inches per foot taper. Lip rests for indexing can be fastened to head or table. The large grinding wheel is mounted on a heavy spindle and runs in ball bearings (no end play) driven by a $1\frac{1}{2}$ h.p. motor through a V-belt and provides three speeds. The head swivels 30 degrees in either direction and the motor is mounted on a vibration-absorbing base which swivels with the head.



All adjustments are accurate and convenient to the operator. The longitudinal travel of the table is through a spiral gear (mounted on a ball and roller bearing) and rack on table. This adjustment is said to be smooth and fast but is always under control of the operator. Dust exhaust unit, centers or a vise can be attached.

On request, the manufacturer will gladly send full information, if you make such request on your business letterhead. Quickmail Coupon No. 22 will save trouble for you in sending off your inquiry.



FEDERAL

now
offers
a choice
of their
**UNIVERSAL
TEST
INDICATORS**

MODEL ONE

Graduated $1/1000''$
Range $.030''$

MODEL TWO

Graduated $1/10,000''$
Range $.008''$

Actual
Size

Send for
circular

FEDERAL PRODUCTS CORP.

1144 EDDY STREET, PROVIDENCE, R. I.
Detroit • Chicago • Muncie • Cleveland • New York

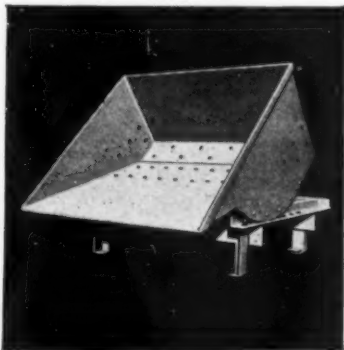
Send Quickmail Coupon No. 54 for catalog.

The New Roura Dump Hopper

Roura Iron Works, Detroit, Mich., announce a new dump hopper for use with hand or power lift trucks, for handling raw materials, parts, waste or finished products, being designed especially for loads that are hot, and for service in departments where the equipment is subjected to high temperatures.

The new hopper is illustrated, model shown being arranged for side dump. It can also be furnished for end dumping.

Constructed of special alloy steel, the sides and bottom are perforated, precautions taken to enable the hopper to resist warping. It can be furnished on legs or casters, with any specified underclearance, and has a capacity of one yard. A simple latch is provided to hold the load securely in position, and when unlatched, the hopper may be emptied promptly and cleanly.



Westcott Issues New Chuck Catalog

A wealth of interesting and useful information pertaining to lathe and drill chucks will be found in the new Westcott Chuck Catalog No. 537, issued by the Westcott Chuck Co., 1600 E. Walnut St., Oneida, N. Y. Current chuck prices are given on the different types, and descriptions of lathe chucks in the complete range of sizes and types for direct mounting on standard flanged spindle noses and on standard taper key drive spindle noses. A request to the manufacturers will bring a copy of the new catalog, without obligation. Use Quickmail Coupon No. 49 to save time and trouble in addressing your request.

HAMMOND

GRINDERS & POLISHERS

*Attach this Advertisement to Your
Letterhead for these New Books:*

- ☐ **New Grinder Catalog No. 22**
- ☐ **New Polisher Catalog No. 10**

Use Quickmail Coupon No. 23

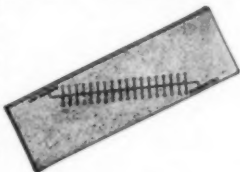


Hammond Machinery Builders
KALAMAZOO, MICHIGAN

Lacing Belts with Tek-Lace

Increasing the smoothness in passing over pulleys, preventing wear and power losses and giving the effect of endless belting—these are some of the advantages claimed for Tek-Lace by the makers, Sudbury Laboratory, P. O. Box 932, South Sudbury, Mass.

This diagonal, non-hazardous, non-metallic belt fastening is illustrated, and is recommended especially for high speed grinders and similar machinery where shocks in the transmission might impair finished work. Also it obviates patching belts with extra pieces when diagonal breaks occur.



The tensile strength of Tek-Lace is said to be 200,000 pounds per sq. in., or stronger than steel. While only 0.055" in diameter, it is asserted to exceed by more than 50% the Federal specifications for $\frac{1}{4}$ " rawhide. It sets flush with the surface of the belt on the pulley side. Recent manufacturing improvements are said to have increased the strength of Tek-Lace and a new coating has added to its resistance against oil, water, wear and time. Address the makers on your letterhead—they'll gladly send you full information.

Haskins Air Controlled Tapping

A further development in the application of air control to tapping operations is announced by R. G. Haskins Co., 4654 W. Fulton St., Chicago.

The Haskins air cylinder was used in the initial development to operate the foot pedal of their high speed tapper by compressed air. The piece to be tapped remained stationary on the work table while the tap head moved up and down.

Now the Haskins air jig has been designed to further increase the sensitivity of air controlled tapping. With this the tap head is fixed and the blanks are presented to the tap. The air jig table is raised vertically by an air operated piston controlled by a

(Continued on Page 76)



**SAVE TIME! GET BETTER RESULTS!
INCREASE YOUR PROFITS!**

with a

***Mall* UNIVERSAL GRINDER**

More horsepower per pound of weight in the operator's hands than any other grinder on the market.

It will pay you to investigate this **PORTABLE, EFFICIENT, HIGH SPEED** machine for grinding and casting snagging. Also, inquire about the various other **MALL** grinders. There is a type for every job!

Use Quickmail Coupon No. 46

MALL TOOL COMPANY

**7742 South Chicago Avenue
Chicago, Illinois**

Offices and Distributors in all Principal Cities

foot pedal control valve assembly, comprising a foot pedal and base, plunger valve, pressure regulator and pressure gauge, as shown.

As with the air cylinder, the new unit relieves the operator of gauging the pressure applied to the tap, maintaining uniform pressure throughout the stroke and controlling the speed of feeding and reversing the tap. The pneumatic control, it is asserted, may be accurately regulated to meet the exact requirements of each tapping job, and where the pieces are neither too heavy nor too bulky, new accuracy in high speed tapping and longer tap life are realized.



It is further said that many plants are finding the new air jig very useful for certain light and delicate operations other than tapping—such as countersinking, counterboring, reaming, spot facing, etc. Where the depth of such operations must be held to close limits, the constancy of air control makes for uniform accuracy.

The makers will gladly supply any further information requested. Use Quickmail Coupon No. 27 when you write for details.

The New Hydraulic Red Giant

Designed to handle weights greater than can be taken care of with the Red Giant single and double stroke trucks, the new Hydraulic Red Giant is offered with an elevating capacity of more than 2½ inches for loads of 2,500 to 10,000 pounds or more. The load may be elevated by long or short strokes at the will of the operator, with equal effort from any angle "around the 360 degree circle". Frames are collapsible to save under-clearance. Automatic shut-off operates when platform reaches full height. The upper frame slides on inclined planes. There are no links—no pawls or ratchets. Models are also available for 4, 5, 6 inch and greater lifts.

The manufacturers, Revolvator Co., North Bergen, N. J., will gladly send you copy of their Bulletin 116. Write them on your letterhead.

FORMERLY
manufactured by Rock-
ford Machine
Tool Co., of
Rockford, Ill.,
thousands of
these drills have
been installed in
plants the coun-
try over, where
they have been
giving universal
satisfaction.

Counterbal-
anced, eight-
speed spindle,
made from high
carbon special
steel, has quick
advance and re-
turn; positive
feeds are instan-
tly available
while machine
is in operation;
all controls with-
in easy reach.

DRILLING MACHINES

**14"-20"-21"
Stationary
Head**

**24"-28"-32"
36"
Sliding
Head**

* * *

**Belt or
Motor Drive**



*Write for
Complete Details*

POWERFUL—SIMPLE— DURABLE—ACCURATE

We have been builders of Drilling Equipment for more than 20 years and, in addition to the above drills, manufacture the Cleereman Automatically Oiled, Anti-Friction, High Speed Drilling, Boring and Tapping Machines; Gang Drills and Special Drilling Machinery.

CLEEREMAN MACHINE TOOL CO.
GREEN BAY, WISCONSIN

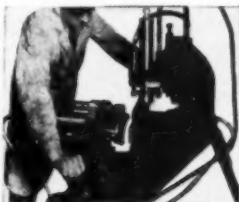
(Formerly Green Bay Barker Machine Tool Works)

Progressive Hydraulic Self-Stripping Punching Unit

Production fixture punching on sheet metal parts is the object of the new self-stripping hydraulic punching unit developed by the Progressive Welder Co., 737 Piquette Ave., Detroit, Mich., illustration of which is shown.

The individual punching units eliminate expensive cam dies, and can be positioned to accommodate curved or irregular shaped parts.

Each unit can punch one or a group of holes according to its size, in one movement and will take up to No. 11 gauge. The hydraulic stripper positions the work against the die before, and releases it only after the punching cycle is completed. The stripper is said to prevent material distortion and to assure clean, accurate, burrless holes.



The punching units can be mounted in groups and are easily changed to accommodate variations or revisions. The units are connected to a master control valve which with a single movement starts the punching operation. In fixtures for large, irregular shaped parts, clamping devices for holding the work are used. Hydraulic pressure is supplied by electrically driven hydraulic pumps maintaining the necessary constant pressure to the units. A large reservoir supplies fluid for the system and will accommodate any number of punches.

Holes of any shape can be pierced and the units are fitted to take standard interchangeable punches and dies. The identically produced parts and uniformity assures lining-up with corresponding parts. All punching operations can be combined in one fixture, taking the work directly from the press and eliminating individual punching operations and expensive dies. The makers emphasize that hydraulic operation makes for safety by eliminating dangerous

(Continued on Page 80)



**For specifications sheet and price lists
use Quickmail Coupon No. 55.**

moving mechanisms, and the combining of several operations in one fixture saves floor space, material handling and operating personnel.

Use Quickmail Coupon No. 47 when you write for details on this Progressive punching and stripping unit.

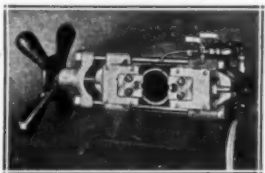
The New Model A Beaver Cut-offs

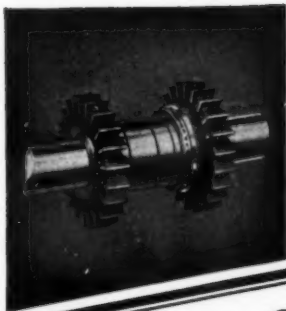
Beaver has met the controversy over wheel-and-roller vs. knife cutoffs as applied to small pipe machines by supplying an efficient design of either type at the same price.

For soft electrical conduit, for "scarfing" pipes, for welding or "grooving" or for Victaulic couplings the knife is recommended. For all-around use, the wheel-and-roller will be found simple, fast and fool-proof. With it solid bars may be cut and the modern thin-blade cutting wheels leave a negligible amount of burr.

Both types of cut-off devices are illustrated. They are instantly interchangeable and the makers recommend purchasing both and using each for the work for which it is best adapted. Or the buyer of a Model A has the option of selecting either type of cutoff device at the same price.

Incidentally, solid, round bars may be cut and threaded, as well as pipe, and the quick opening, fully adjustable die-heads will handle the full range from $\frac{1}{8}$ to 2 inches. An interesting illustrated leaflet enumerates the many exclusive features of the Beaver, gives performance data and considerable information about the equipment and applications of this useful machine. Copies will be mailed on request by Beaver Pipe Tools, Inc., 375 Dana St., N. E., Warren, Ohio. Quickmail Coupon No. 28 will bring you your copy.



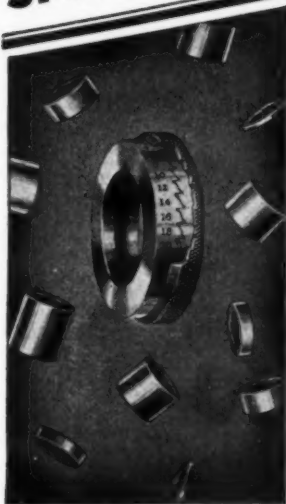


**FOR ALL MAKES
OF MACHINES**



**Adjustable
and
Solid**

SPACING COLLARS



Adjustable Spacing Collars

For straddle milling,
gang milling and mul-
tiple slotting set-ups.
They eliminate the use
of shims.

Solid Spacing Collars

Are standard .001" to
3" thick. Less than $\frac{1}{8}$ "
are not hardened.

Send Coupon No. 40 for
catalog of Scully-Jones
equipment.



**SCULLY-JONES
and
COMPANY**
1905 S. Rockwell St.,
CHICAGO, ILLINOIS



- QUIETNESS
- RELIABILITY
- MAXIMUM PERFORMANCE



CENTRIFUGAL COOLANT PUMPS

THESE UNITS CAN BE MOUNTED IN ANY POSITION

AG3M	1/4 H.P. BALL BEARING MOTOR	25 G. P. M.	10 FT. HEAD
AG4M	1/2 H.P. BALL BEARING MOTOR	35 G. P. M.	10 FT. HEAD
AG5M	1/2 H.P. BALL BEARING MOTOR	50 G. P. M.	10 FT. HEAD
AG6M	3/4 H.P. BALL BEARING MOTOR	70 G. P. M.	10 FT. HEAD

FULFLO SPECIALTIES CO., INC.
BLANCHESTER, OHIO

HI-DUTY

PNEUMATIC MARKING MACHINE

This is a light, general purpose hand marking machine for use on flats, rounds and irregular surfaces, which is supplemented with an air cylinder to take the place of the foot pedal for applying pressure to



raise the work table to the lettering tool. Air from the shop line is used and the four way foot valve assures fast operation. Machine uses solid flat or round dies, as well as adjustable type, in flat or knurl type holder.

Advanced business methods demand improved records of metal fabrications and this machine makes marking operations quick and simple. Part numbers — order numbers — manufacturer's name and other important data marked on your products will mean permanent records, to last the life of the part. This general purpose marking machine will help you.

Send Coupon No. 70 for complete catalog of our full line of Marking Tools, Machinery and Equipment.

Designed and Built By

GEO. T. SCHMIDT, INC.,

1802 Belle Plaine Avenue,

Chicago, Illinois.

Builders of Marking Equipment since 1895.

KRW Hydraulic and Sensitive ARBOR PRESSES

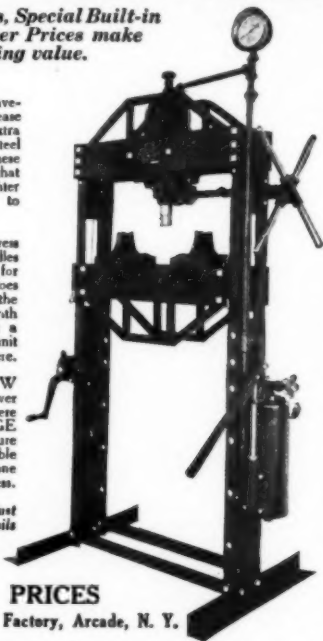
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this K R W feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

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No. 37—35 ton Hydraulic and Sensitive Arbor Press	\$150.00
No. 37E—50 ton Hydraulic and Sensitive Arbor Press.....	180.00
No. 37F—70 ton Hydraulic and Sensitive Arbor Press.....	300.00
Gauge and fittings, \$15.00 extra on all presses.	

K. R. WILSON

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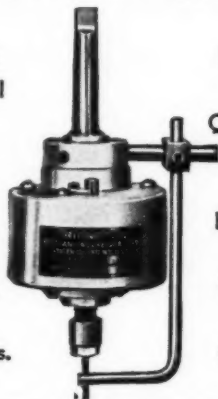
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Cone Drive

2 to 1 Auto-Reverse Tapping Chuck

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Bronze & Ball
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Cone-Clutches.



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Quick-Handling
Especially
on
Bottom-Holes

Other Styles
and Sizes
0" to 2" taps

Size	Taps in Steel	Taps in Cast Iron	Price	Code
No. 00	0" to 3/16"	to 1/4"	\$35.00	Phlam
No. 0	to 3/8"	to 1/2"	\$50.00	Phalanx

The principle on which this Style is designed is especially effective on very small tapping; whereas in the No. 0 size the Frictional Grip is Greatly **INTENSIFIED**, to cover a wider range, without loss of sensitiveness.

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NICHOLSON

EXPANDING MANDRELS



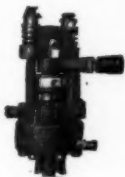
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Types shown at left, top to bottom, are: plain stationary press fit, type 'P'; shouldered stationary press fit, type 'S';



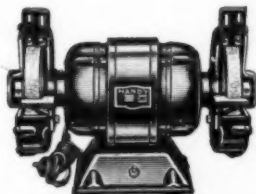
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**RUGGEDLY BUILT FOR HEAVY DUTY
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Heavy duty, $\frac{1}{2}$ H. P. Capacitor Type, ball-bearing motor; 1 phase, 110 volt, 60 cy.
Cast iron guards, tool rests; switch in base. 3400 r. p. m. **\$50.00**

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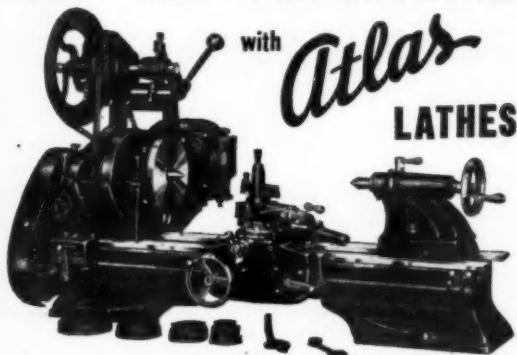
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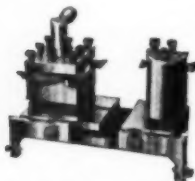
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Ideal for making small parts on a production basis. Holds six tools.



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Performs many operations in quick rotation including threading, facing, turning, cutting off, etc. Adjustable stops. Tool posts take $\frac{3}{8}$ " bits.



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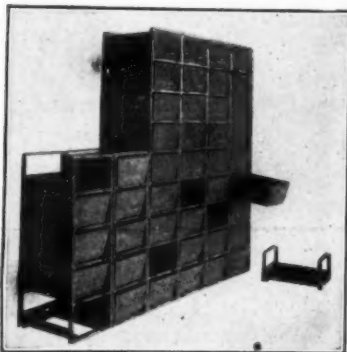
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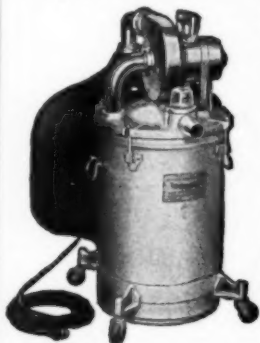
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**Portable Industrial
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This new machine is designed to solve all industrial cleaning problems without the expense of installing a stationary plant or using so-called portable cleaners which are too heavy and expensive for average plant applications.

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1 H. P. Motor—46 $\frac{1}{4}$ Waterlift

Do not confuse the TORNADO with light-duty cleaning machines. Model 112 combines light weight (only 40 pounds) with tremendous cleaning power (1 H. P. G. E. ball bearing Motor—46 $\frac{1}{4}$ waterlift). Patented principle of separating fine dust from refuse and depositing heavy dirt in tank makes this cleaner as applicable to heavy duty work as the largest machines. Sturdy construction insures long life and low yearly cost.

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For boring, counterboring, recessing, tre-
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New Metal Cutting **14 inch BAND SAW**



The regular 14-inch Delta Band Saw, fitted with countershaft to reduce the speed, has been used in hundreds of shops for cutting Iron, Steel, Brass, Bronze and Aluminum bars, shapes and sheets; in foundries, for cutting off gates, in die-casting shops for trimming and sawing castings.

Here is a new and improved back-geared model which is even more ideal for this work. It is the perfect machine for the general machine shop, tool room or experimental shop, where many different materials must be cut.

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14" Back-geared Metal-Cutting Band Saw, complete with guards, 8" arbor pulley for wood and cone pulley for metal. With one 14-tooth metal-cutting blade. Without light attachment, belts, stand, motor or motor pulley. Shipping weight 175 lbs.

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"The Conway Disc is a Splendid Clutch"

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Even under the severest punishment, "UNBRAKO" Hollow Set Screws hold fast and stay put. Made of alloy steel, properly heat-treated—they're tough and hard so points don't mushroom and hex won't round.

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Any Kind of Blow Can Be Struck

The clamping jaws can be set up to take care of shrinkage. Faces cannot fall out or rattle in head.

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Licks Another Tough Job



Here you see the solution to the problem of grinding forming rollers used in making pump tubing. The work is being done with a Dumore Lathe Grinder—at a fraction of the previous cost when the work was done on specially-built machines. Greater accuracy is assured too—for Dumore grinders work to within 1/10,000 of an inch.

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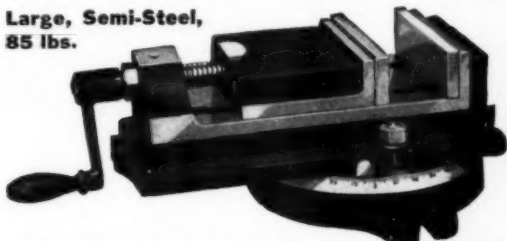
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**Large, Semi-Steel,
85 lbs.**



This large semi-steel vise which can be used plain or swivel is suitable for milling machine, drill press or shaper. Has sturdy $6\frac{1}{2}$ " steel jaws, 2" deep. Jaws open $4\frac{1}{2}$ ", or $5\frac{1}{4}$ " without steel jaws. Four bolts and key slots provide for attaching to machine table holding surface and jaws at right angles or parallel to table. Shipping weight 90 lbs. $6\frac{1}{2}$ " size.....

\$29.50

Made in two sizes. $4\frac{1}{2}$ " size.....

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4-Jaw Independent Lathe Chucks

MADE IN 3 SIZES

Semi-steel construction with heavily ribbed body to withstand unusual strains. Ground finish. Four independent jaws made of accurately ground and fitted hardened steel. Reversible. Has $1\frac{1}{4}$ " tough nickel steel screws. 12" size, weight 75 lbs.

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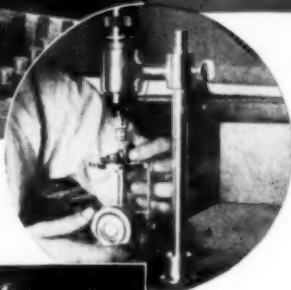
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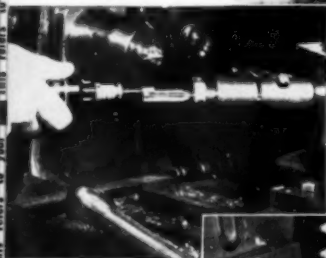
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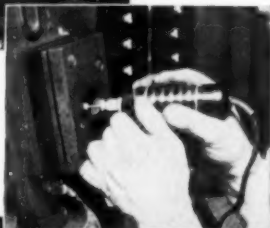
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any position
save time on a
wide range of
operations.*



*Indispensable in die
shops and all metal
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die, even when set on
presses.*



The most versatile
actually a whole s
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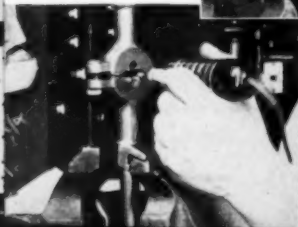
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versatile tool ever offered—
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1101 W. Monroe St., Dept. WD, Chicago, Ill.

See Also
Model

\$18.50

postpaid
Accessories
Free

HERE'S A NEW TOOL THAT WILL

*Cut your
Costs*

SQUARELY IN TWO

PATTERN WORK

TOOL ROOM

MAINTENANCE

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—don't go another day without getting facts about this amazing Cost Cutting tool—

THE NEW HOBART 40 VOLT Simplified" ARC WELDER

—which comes to you on 30 days trial...which has features many others leave off...which costs you less to operate...which handles either plain or coated rod with ease. The coupon below brings complete details. Hobart Bros., Box TB-77, Troy, Ohio. One of the world's largest builders of arc welders.

GET
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TO PROVE
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FREE!!

The booklet above tells of the many profitable uses of welding in large and small shops. Use Quickmail Coupon No. 51.

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Gentlemen: Please send me, without obligation, complete details on the new Hobart 40 Volt Arc Welder for use in _____

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HOBART BROTHERS

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THROATLESS SHEARS

**REDUCE
YOUR
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COSTS**

These rotary, self-feeding shears are essential equipment for modern sheet metal work. Designed for cutting in and out curves, straight or irregular shearing and circle work. Built in various sizes with capacities from half-inch down to tin. No. 114 with $\frac{1}{4}$ " capacity is illustrated.



Write us concerning your shearing requirements—also for information on our punch presses, bevel shears, bending rolls and other metal working equipment. Or send Quickmail Coupon No. 43 for literature.

MARSHALLTOWN MANUFACTURING CO.
900 East Nevada St., Marshalltown, Iowa

QUICKMAIL COUPONS

HOW TO USE THEM

- 1** Stick Coupon on your letterhead giving your name and position

OR

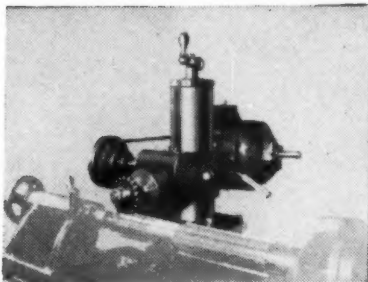
- 2** Stick Coupon on front of postal card, giving your name, position and firm name on back of card.

IMPORTANT!

Advertisers will not acknowledge inquiries unless you tell them what firm you are with, and your position with the firm.

**A SIMPLE - SPEEDY - SERVICE
FOR YOUR CONVENIENCE**

★ IT'S AMAZING!!! The MASTER Lathe Converter ★



Easily and quickly
attached to an ordi-
nary engine lathe.

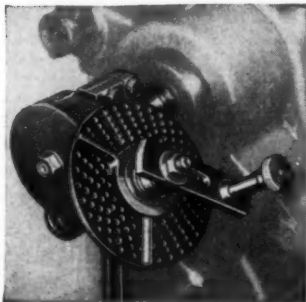


Does all milling
operations such
as: gear work,
spline work,
broaching key-
ways, hobbing
etc. Grinding at
all angles, inter-
nal or external.

**No Dismantling of Lathe — Fits on
compound same as your tool post.
Not "Just Another Lathe Attachment"**

USE QUICKMAIL COUPON NO. 44

The MASTER Geared Type Dividing Head ★



Fits into rear
open end of lathe
spindle. Has 40
to 1 reducing
gear—counting
indicators, three
plates allowing
720 divisions.
Collet furnished
to fit your spindle.

MASTER MACHINE & TOOL CO.
NORTH KANSAS CITY, MISSOURI

Fig. 2
Without
Jig Attach-
ments



Flanged at bottom
for bolting down,
with slots at large
end,—not shown.

The Attachments
mean much dupli-
cate drilling with-
out expensive jigs.

A simple single-
purpose jig will cost
more than the Vise,
Fig. 1, which will do
a thousand jobs.



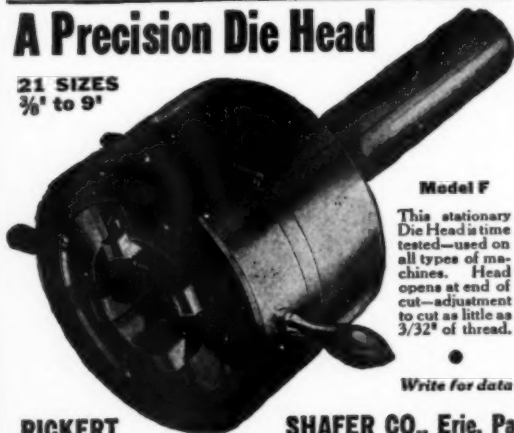
Fig. 1 With Jig
Attachments

*Send
for
Circulars*

THE GRAHAM MFG. CO., 70 Willard Ave.,
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A Precision Die Head

21 SIZES
 $\frac{3}{8}$ " to 9"



Model F

This stationary
Die Head is time
tested—used on
all types of ma-
chines. Head
opens at end of
cut—adjustment
to cut as little as
 $\frac{3}{32}$ " of thread.

Write for data

RICKERT

SHAFFER CO., Erie, Pa.



Flexible Shaft Equipment

Attach a WYCO Shaft To Any Motor!

Only WYCO Flexible Shafts have the smooth-running non-metallic inner liner.



Prices are complete with ball bearing hand-piece and motor coupling to fit your motor.

When ordering, please specify diameter of motor shaft.

No. 0 WYCO "Junior" Flexible Shaft, 4 ft. long	\$ 7.50
No. 01 WYCO "Junior" Flexible Shaft, 5 ft. long	10.50
No. 1 Heavy-duty WYCO Flexible Shaft for 1/4 H.P. motor, 4 ft. long	15.00
No. 10 Heavy-duty WYCO Flexible Shaft for 1/3 H.P. motor 5 ft. long	20.00
No. 02 Heavy-duty WYCO Flexible Shaft for 1/2 H.P. motor 5 ft. long	22.50
No. 2 Heavy-duty WYCO Flexible Shaft for 1/2 H. P. motor 6 ft. long.	25.00
No. 20 Heavy-duty WYCO Flexible Shaft for 1/2 H. P. motor 7 ft. long	28.50
No. 3 Heavy-duty WYCO Flexible Shaft for 3/4 H. P. motor 6 ft. long	30.00
No. 30 Heavy-duty WYCO Flexible Shaft for 3/4 H.P. motor 7 ft. long	33.50
No. 4 Heavy-duty WYCO Flexible Shaft for 1 H.P. motor 7 ft. long...	40.00

Flexible Shaft Attachments

SEE WYCO GENERAL CATALOG FOR PRICES

WYCO Sanding Discs
WYCO Drum Sanders
WYCO Felt Pads
Lamb's Wool Pads
Wire Scratch Brushes
WYCO Graphite Grease

WYCO Rotary Files
WYCO Rotary Rasps
Mounted Grinding Wheels
Collet Handpiece
WYCO Drill Chuck
Aluminum Wheel Guard

Send Coupon No. 19 for WYCO Catalog.

WYZENBEEK & STAFF, INC.

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CHICAGO, ILL.



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LUBRICATING DEVICES

● Efficient - Dependable ●

When you need lubricating equipment—from automatic lubricators to the tiniest grease cup—call on ESSEX. We can supply it, and 37 years of experience is at your disposal in solving any lubricating problem.

Write for Your Copy of ESSEX Catalog No. 7

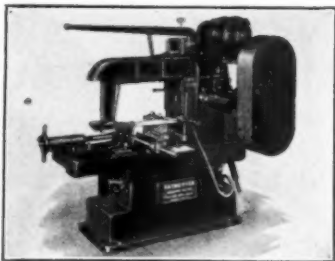
ESSEX BRASS CORPORATION
2000 Franklin St., Detroit, Mich.



THE NEWEST DEVELOPMENT IN METAL CUTTING MACHINES

**CAPACITY 10"x10"
or 6"x6"**

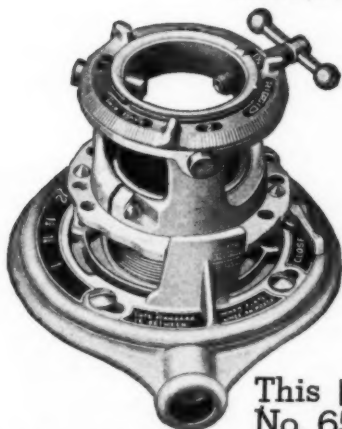
Swivels on base for angular cuts—three speeds by V belt. Saw Guide of Parallel type. Saw frame has 4 large self-aligning bearings, unaffected by excessive tightening of saw blade. Vise graduated to 45 degrees — Feed is compensating type.



Also built as FULL AUTOMATIC. Send for circulars giving complete information.

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ONLY 4 CHASER DIES INSTEAD OF 16



This **RIDGID** No. 65R threads 1" to 2" pipe—without changing dies—perfect accurate threads. One set of 4 dies—no bother changing, forget the other 12 you don't need. You'll like this **RIDGID** No. 65R. Write for folder or ask your jobber.

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RIDGID PIPE TOOLS

BEFORE BUYING...



Check These Vital Points:

- 1—Size and shape of bearing block?
- 2—Overhang or distance from shank to boring bars?
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- 4—Accuracy and readability of dial screw?
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CRALEY OFF-SET BORING HEADS meet all your requirements. Made in 7 sizes for everything from the smallest holes up to 20" diameter.

Write for full information.

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ONE LIBERT SHEAR— NOT SEVERAL SHEARS!

Meets all requirements for cutting **IRREGULAR SHAPES**—standard equipment furnished for ring and circle cutting.....absolutely accurate and easily operated metal is sheared and not punched cut anywhere, no starting holes required for inside cutting only one adjustment for various thicknesses of material used unobstructed cutting vision no further finishing required. No special cutters, pilots, templates, or strippers are needed...long life shear blades.



Write for complete information.

LIBERT MACHINE CO., Green Bay, Wis.

Manufacturers of shears since 1915

Libert Method

WRITE for these BULLETINS



M-B "SUPER SPEED" AIR GRINDER

Has revolutionized the hand air-operated grinder field. First and only grinder to have spindle speed of 100,000 R. P. M. Amazing power. Weight, 6½ ounces.

PRE - DETERMINED FEED MACHINE OILER

Delivers any feed desired. No periods of "feast or famine". Steel—no crystallization. Stronger than brass. Cadmium plated throughout. Also adjustable feed oilers.

OTHER M-B PRODUCTS

"Heavy Duty" Air Grinder, 65,000 R. P. M. Over ¼ H. P., 3 speed ranges, 3 power stages. Air Line Filters and Air Line Lubricators.

Write today for details

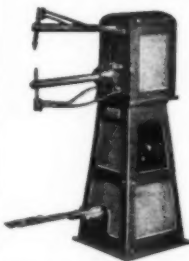


M-B PRODUCTS 130 E. Larned Street,
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New Ideal 10 KVA Spot Welder!

18" arms—capacity 2 pieces 14 ga. and lighter.

Only \$150.



New 13 KVA Ideal Welders
with 24" arms, capacity 2
pieces $\frac{1}{8}$ " and lighter.

Only \$185.

Here is a real opportunity to
buy a new Spot Welder at a
used price. Immediate stock
shipment. Write at once for
descriptive circular.

*\$10.00 additional for
water-cooled electrodes*

*Above prices will advance after
present stock is exhausted*

INTERSTATE MACHINERY CO.

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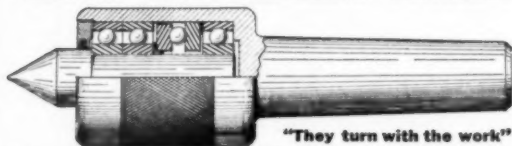
Cast YOUR Hammers with the FIELD MOULD and LADLE

Soft-metal hammers are invaluable for hard
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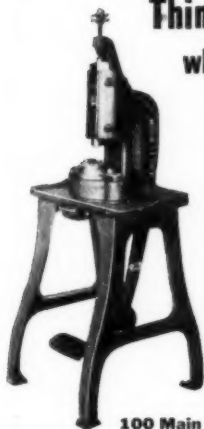
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"ALIVE" BALL BEARING CENTERS



"They turn with the work"

Modern Machine Corp., 313 BERRY ST.,
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Think of "EXCELSIOR" when you think of Foot Presses.

Since 1890 Royersford-Excelsior Foot Presses have been demonstrating their value for jewelers' work and light metal stamping. Model 10 is shown—also made in Nos. 2, 12, 15 and 20 sizes. Send for catalogs on the "Royersford Line" of Foot Presses—Power Hack Saws, Back Geared Upright Power Drills, "Ball Bearing" Polishing Machine, etc.

Dealers Wanted.

ROYERSFORD

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Sharp saws cut clean and fast— The G-S AUTOMATIC SAW SHARPENER

is just what you need to keep saws small and large at their best. Can be set for any job in a few minutes time, and operates without attention until every tooth is sharp. Saves time, saves saws, insures better work. Saves its low cost quickly.

Price 6" size, \$117.50
12" size, 135.00

Write now for details and specifications.



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SpeedWay

More Tool for the Money

Portable
GRINDERS



WRITE FOR
CATALOG

Does a Hundred Jobs Well

Priced within range of every shop still built to industrial standards, the SpeedWay Type 123 Grinder is the lightest, handiest, most serviceable grinder built for all around use—for both precision and touch-up work. Does a hundred jobs well both as a hand tool and on lathes. Powerful motor operates on both AC and DC—takes up to 1½ inch wheels. All aluminum construction. In case with collet, wrench and 3 grinding wheels.

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BETTER-MADE
DIE SETS

BAUMBACH

AT LOWER
COST

46
DIFFERENT
STYLES



OVER
185,000
SIZES

STANDARDIZED

Machined Steel

DIE SETS

Semi-Steel

Drop Forged Steel

Send For Our New 288 Page Catalog

E. A. BAUMBACH MFG. CO.
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The "BUTTERFLY" Filing and Die Making Machine

Saves cost in sawing, filing and lapping on dies, gauges, tools, etc.

In highest possible quality of material, precision of machining and nicety of adjustments, the "BUTTERFLY" Filing Machine is as painstaking a product as the finest watch movement—and just as reliable.

NOISELESS IN OPERATION

Made in its entirety under the direct personal supervision and exacting standards of the well recognized and able engineer, Leonard Markels. All parts are interchangeable.

Named "BUTTERFLY" because it is as noiseless in its running as a Butterfly is in its flying.

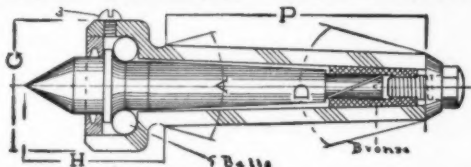
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Says, "Now Come-On, you Kroakers for Accuracy, with your 1/10 limit".

We recently delivered 2 centers under 2/10 limit. One tested out with only 1/2 of 1/10 error, while the other almost made the Indicator quit breathing, with only 1/4 of 1/10 error. The Rigid Centers are inherently accurate, and Resilient.

After 7 Years, not one has ever yet broken a Ball or gone to Junk.

RIGID TOOL HOLDER CO.
2000 Witherell St., - - - Detroit, Michigan



New Drill Grinding Attachment

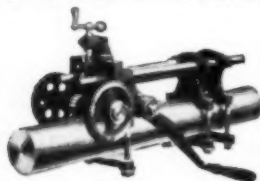
fits the Black & Decker Grinders, gives you a correct grinding of twist drills.

PRICE ONLY \$18. *Why not own one that you may be able to grind your twist drills the way they should be ground.*

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BURR Portable Keyseaters



Indispensable for repair and maintenance work. BURR keyseaters mill keyways in the run or on the ends of shafts while they are still on the machine—accurately, quickly, economically—and save the necessity of taking down large shafts and housings. Made in 7 sizes, hand or power driven.

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Cuts a Clean Sheared Edge Without Knurl or Distortion

Two Sizes—No. 1 weighs 16½ lbs., cuts up to 14 gauge. No. 2 weighs 32 lbs., cuts up to 10 gauge.

Priced low—Send for free circular

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Twenty Years of Popularity.

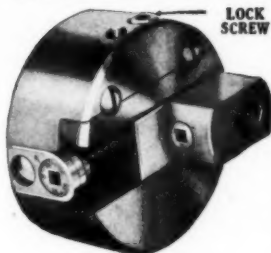
"Quality at a reasonable price"

6-inch, 10½-inch and 12-inch swing. Furnished either Right or Left hand type, for all makes of plain or universal milling machines.

See your Dealer or write for bulletin showing complete line

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FLYNN MICROMETER OFFSET BORING HEADS



LOCK
SCREW

No. 30

This dovetail designed head is particularly useful where a large offset is required. Body is solid steel, dovetailed hardened tool holder has $2\frac{1}{2}$ " offset. Tension gib and locking device takes strain of micrometer screw. Dial graduated in thousandths, 50 thousandths to a turn, insuring accurate adjustment in boring. Bar capacity is $\frac{1}{4}$ -. $\frac{3}{4}$.

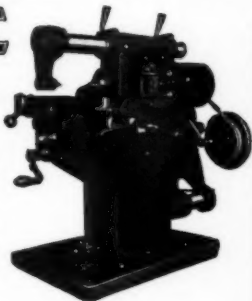
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Burke milling machines are especially suited for handling small, difficult work on a production basis.

Motor drive is available on the Nos. 1, 2, 3 and 4 machines.

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MODERNIZE YOUR BEARING PROTECTION WITH



Send for complete catalog of Gits lubricating devices.

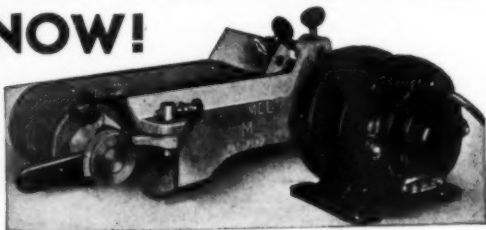
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MANUFACTURERS OF QUALITY LUBRICATING DEVICES SINCE 1911

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An Inexpensive

ABRASIVE BAND GRINDER—

“Built Like A Machine Tool”

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12.00	25 lbs.
15.00	35 lbs.
17.00	35 lbs.

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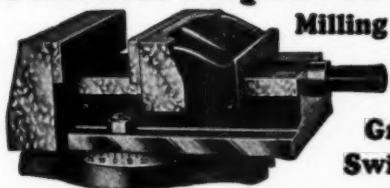
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Milling Machine

**Vise
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**Graduated
Swivel Base**

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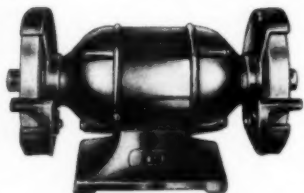
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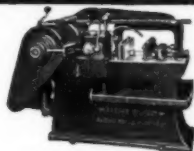
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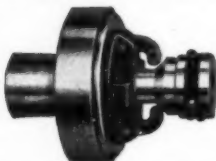


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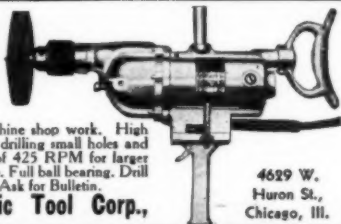
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All kinds of materials

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THE GRANT MFG. & MACHINE CO.
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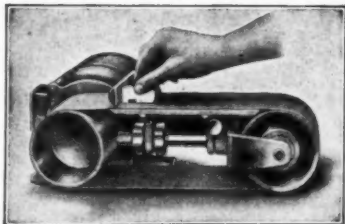
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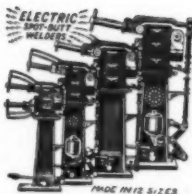
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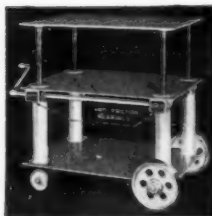


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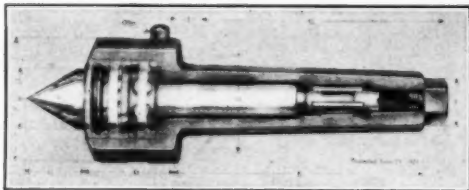
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(Superior in quality and design)

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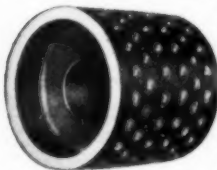
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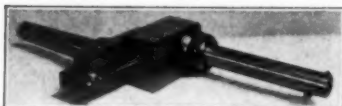
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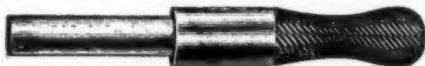
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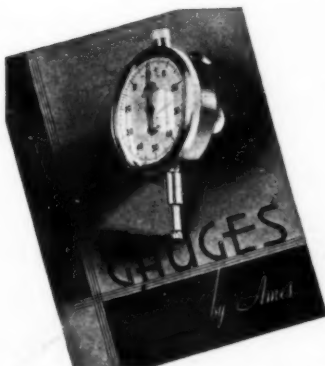
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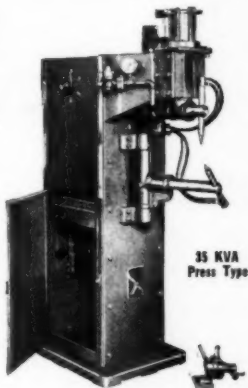
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Oliver Machinery Co., Grand Rapids, Mich.
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Grob Bros., West Allis, Wis.

Bar Cutters
Buffalo Forge Company, Buffalo, N. Y.

Belt Sanders
Shileaw, Inc., 3304 Elston Av., Chicago, Ill.

Belts, V-Type
Delta Mfg. Co., Milwaukee, Wis.

Bench Legs, Steel
Standard Pressed Steel Co., Jankintown, Pa.

Bench Lathes
Sheldon Machine Co., 3255 Cottage Grove Ave., Chicago, Ill.
Hardinge Brothers, Inc., Simla, N. Y.

Bench Punches
Whitney Mfg. Co., W. A., Rockford, Ill.

Bending Rolls
Marshalltown Mfg. Co., Marshalltown, Ia.

Bending Machines, Hand and Power
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Buffalo Forge Company, Buffalo, N. Y.
Lewthwaite Mch. Co., T. H. 311 E. 47th, N. Y.

Bins
Stacklin Corp., Providence, R. I.

Blow Guns
Eusev Brass Corp., Detroit, Mich.

Blowers
Breuer Elect. Co., 346 Blackhawk St., Chgo.
Buffalo Forge Co., Buffalo, N. Y.
Clements Mfg. Co., 6850 Naragansett, Chicago

General Blower Co., 401 N. Peoria St., Chicago

Standard Electrical Tool Co., Cincinnati, O.

Blowers, Portable Electric
Breuer Electric Co., 346 Blackhawk St., Chgo.
Buffalo Forge Co., Buffalo, N. Y.
Clements Mfg. Co., 6850 Naragansett, Chicago

Shileaw, Inc., 3304 Elston Av., Chicago, Ill.

Bolts and Nuts
Triplex Screw Co., Cleveland, Ohio

Books, Engineering and Technical
The Linc. in Electric Co., Cleveland, O.

Boring Bars
Rigid Tool Holder Co., Detroit, Mich.
Russell Boring Bar Co., Middletown, Ohio

Boring Heads
C. C. Craley Mfg. Co., Shillington, Pa.
Flynn Manufacturing Co., Detroit, Mich.
Rickert-Shafer Co., Erie, Pa.

Boring Machines
Cleerman Mch. Tool Co., Green Bay, Wis.
Hack Universal Die Making Machine Co., 440 N. Oakley Blvd., Chicago
H & L Tools, Nicetown, Pa.
Rickert-Shafer Co., Erie, Pa.

Broaching Machine Tools
Colonial Broach Co., Detroit, Mich.
Hack Universal Die Making Machine Co., 440 N. Oakley Blvd., Chicago

Broach Sharpening Machines
Colonial Broach Co., Detroit, Mich.

Broaches, Splines and Square
Colonial Bushings Co., Detroit, Mich.
Taylor Machine Co., Cleveland, Ohio

Brakes, Hand and Power
Allsteel Press Co., 12015 S. Peoria St., Chicago

Dreis & Krump Mfg. Co., 7440 So. Loomis Blvd., Chicago, Ill.

Brazers, Electric
Grob Brothers, Grafton, Wis.
Oliver Machinery Co., Grand Rapids, Mich.

Briquetting Machines
Grob Bros., West Allis, Wis.

Buffers, Bench
Hammond Mch. Builders, Inc., Kalamazoo, Mich.

Valley Electric Corp., St. Louis, Mo.
Vonnegut Moulder Corp., Indianapolis, Ind.

Buffers, Pedestal
Valley Electric Corp., St. Louis, Mo.
Vonnegut Moulder Corp., Indianapolis, Ind.

Burs, Steel
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Bushings, Steel
Acme Industrial Co., 210 N. Laffin St., Chicago, Ill.

Baumbach Mfg. Co., W. A., 1812 So. Kilbourne Ave., Chicago

Universal Eng. Corp., Frankensmith, Mich.

Bushings, Jig
Acme Industrial Co., 210 N. Laffin St., Chicago, Ill.

Colonial Bushings Co., Detroit, Mich.

Cable, Electric
The Lincoln Electric Co., Cleveland, O.

Cable, Welding
The Lincoln Electric Co., Cleveland, O.

Call Systems
Wysenbeck & Staff, Inc., 642 Washington Blvd., Chicago

Cams, Alloy Steel
Modern Collet & Mch. Co., Ecorse, Mich.

Cams
Banner Mfg. Co., 1873 Clybourn Av., Chgo.

Cap Screws
Triplex Screw Co., Cleveland, Ohio

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Centering Machines

Gulman Wheel Co., 1359 Altgeld St., Chgo.

Centerless Grinding

Machinists Tool Grinding & Mfg. Co., 3008 W. Van Buren, Chicago, Ill.

Centers, Lathes

Rigid Tool Holder Co., Detroit, Mich.

Modern Mch. Corp., Brooklyn, N. Y.

Chains, Silent and Roller

Chicago Gear Works, 700 W. Jackson Blvd., Chicago

Gulman Wheel Co., 1359 Altgeld St., Chgo.

Chamfering Machines, Automatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Chasers, Thread

Jones & Lamson Mch. Co., Springfield, Vt.

Chucks

Elton Tool Co., 594 Johnson Av., Brooklyn, N. Y.

Universal Eng. Corp., Frankensmuth, Mich.

Chucks, Air

Tomkins-Johnson Co., Jackson, Mich.

Chucks, Automatic

Premier Safety Chuck Co., 14 S. Clinton St., Chicago

Chucks, Collet

Apex Machine Co., Dayton, Ohio

Premier Safety Chuck Co., 14 S. Clinton St., Chicago

Tomkins-Johnson Co., Jackson, Mich.

Chucks, Drill and Tap

Apex Machine Co., Dayton, Ohio

Errington Mech. Lab., Staten Island, N. Y.

Elton Tool Co., Brooklyn, N. Y.

Hartford Special Mch. Co., Hartford, Conn.

Premier Safety Chuck Co., 14 S. Clinton St., Chicago

Scully-Jones & Co., 1906 S. Rockwell, Chicago

Chucking Fingers

Modern Collet & Mch. Co., Ecorse, Mich.

Morrison Mach. Products, Inc., Elmira, N. Y.

Chucks, Quick Change

Premier Safety Chuck Co., 14 S. Clinton St., Chicago

Clutches, Friction

Carroll Mfg. Co., L. W., Cincinnati, O.

Conway Clutch Co., Cincinnati, Ohio

Cold Saws

Burke Machine Tool Co., Connecticut, Ohio

Collets for all Lathes and Millers

Apex Machine Co., Dayton, Ohio

Hardinge Brothers, Inc., Elmira, N. Y.

Modern Collet & Mch. Co., Ecorse, Mich.

Butten Tool Co., Detroit, Mich.

Universal Eng. Corp., Frankensmuth, Mich.

Collets for Auto. and Hand Screw Machines

Morrison Mach. Products, Inc., Elmira, N. Y.

Butten Tool Co., Detroit, Mich.

Collets, Spring

Modern Collet & Mch. Co., Ecorse, Mich.

Morrison Mach. Products, Inc., Elmira, N. Y.

Collet Tubes

Modern Collet & Mch. Co., Ecorse, Mich.

Butten Tool Co., Detroit, Mich.

Comparators

Federal Products Corp., Providence, R. I.

Jones & Lamson Mch. Co., Springfield, Vt.

Contract Work Wanted

Burke Machine Tool Co., Connecticut, O.

Cone Drills

Gairing Tool Co., Detroit, Mich.

Counterbores

Gairing Tool Co., Detroit, Mich.

Scully-Jones & Co., 1906 S. Rockwell, Chicago

Couplings, Compression Shaft

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Couplings, Flexible

Ajax Flexible Coupling Co., Westfield, N. Y.

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Levajay Flex. Coupling Co., 5026 Lake, Chgo.

Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, Ohio

Couplings, Shaft

Ajax Flexible Coupling Co., Westfield, N. Y.

Faulk, F. R., 405 Penn Av., Pittsburgh, Pa.

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Cut-off Machines

Modern Mach. ne Tool Co., Jackson, Mich.

Rasmussen Machine Co., Racine, Wis.

Cut-off Saws

Oliver Machinery Co., Grand Rapids, Mich.

Tannowitz Works, Grand Rapids, Mich.

Cutters

Putnam Tool Co., Detroit, Mich.

Progressive Tool & Cutter Co., Ferndale, Mich.

Tomkins-Johnson Co., Jackson, Mich.

Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.

Machinists Tool Grinding & Mfg. Co., 3008 W. Van Buren, Chicago, Ill.

Modern Machine Tool Co., Jackson, Mich.

Scully-Jones & Co., 1906 S. Rockwell, Chicago

Cutters, Gear

Michigan Tool Co., Detroit, Mich.

Demagnetizers

Luma Electric Equipment Co., Toledo, Ohio

L. W. Chuck Co., Toledo, Ohio

Prints Electric Co., Detroit, Mich.

Dies, Blank and Forming

American Tool Works, Inc., Hartford, Conn.

Hamilton Tool Company, Hamilton, Ohio

Robert-Shafer Co., Erie, Pa.

Die Filers

Continental Mch. Specialties, Minneapolis

Grob Brothers, Grafton, Wis.

Die Heads, Self-Opening

Apex Machine Co., Dayton, Ohio

Die Making Machines

Armco Co., Milwaukee, Wis.

Continental Mch. Specialties, Minneapolis

Grob Brothers, Grafton, Wis.

Hack Universal Die Making Machine Co., 440 N. Oakley Blvd., Chicago

Harvey Mfg. Co., 161 Grand St., New York

Oliver Machinery Co., Grand Rapids, Mich.

Oliver Instrument Co., Adrian, Mich.

Prett & Whitney, Hartford, Conn.

Die Sets

Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Dies, Hole Punching

Strippit Corp., Buffalo, N. Y.

Dies, Notching

Strippit Corp., Buffalo, N. Y.

Dividing Heads

Wm. Carroll & Son, Norwood, Cincinnati, O.

Master Machine & Tool Co., North Kansas City, Mo.

Dowel Pins, Steel

Acme Industrial Co., 210 N. Laflin St., Chicago, Ill.

Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Dressers, Angle Tangent to Radius

Vince Tool Co., Detroit, Mich.

Drills and Taps

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Don't halt production and pay skilled mechanics to dig it out, often injuring the work.

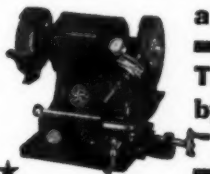
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Universal Eng. Corp., Frankensmuth, Mich.
Drills, Electric
Sillaw, Inc., 3304 Elston Av., Chicago, Ill.
SpeedWay Mfg. Co., 1822 So. 62nd Ave., Cicero, Ill.
Standard Electrical Tool Co., Cincinnati, O.
Temco Electric Motor Co., Leipsic, Ohio
Wodack Electric Tool Corp., 2629 W. Huron St., Chicago, Ill.

Drill Grinders
Star Mchs. & Eng. Co., Bloomfield, N. J.
Drill Heads, Multiple Spindle
Sellow Machine Tool Co., Pawtucket, R. I.
Drill Holder Bushings
Banner Mfg. Co., 1873 Clybourn Av., Chgo.
Drill Jigs, Special
Siwek Tool Co., Ferndale, Mich.
Drill Jigs, Universal
Henderson & Kaye, Watavia, Ill.
Siwek Tool Co., Ferndale, Mich.

Drilling Attachments, High Speed
Graham Manufacturing Co., Providence, R. I.
Dairco Tools Co., Syracuse, N. Y.

Drilling Machines, Bench
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Cleareman Mchs. Tool Co., Green Bay, Wis.
High Speed Hammer Co., Rochester, N. Y.

Drilling Machines, Multiple Spindle
Buffalo Forge Co., Buffalo, N. Y.

Drilling Machines, Portable Electric
Sillaw, Inc., 3304 Elston Av., Chicago, Ill.
SpeedWay Mfg. Co., 1822 So. 62nd Ave., Cicero, Ill.
Strand Co., N. A., 6061 N. Lincoln Street, Chicago, Ill.
Temco Electric Motor Co., Leipsic, Ohio
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Drilling Machines, Post
Buffalo Forge Co., Buffalo, N. Y.

Drilling Machines, Radial
Western Machine Tool Wks., Holland, Mich.

Drilling Machines, Sensitive
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Burke Machine Tool Co., Geneseo, Oh.

Drilling Machines, Vertical
Atlas Press Co., Kalamazoo, Mich.
Buffalo Forge Company, Buffalo, N. Y.
Ryersford Foundry & Machine, Co., Ryersford, Pa.

Drives, Lathe
Culman Wheel Co., 1339 Altgeld St., Chgo.
Hardinge Brothers, Inc., Elmira, N. Y.

Electric Motors with Integral Brakes
Star Mchs. & Eng. Co., Bloomfield, N. J.

Electrical Instruments
Illinois Testing Laboratories, Inc., 180 W. Austin Ave., Chicago

Elevating Tables
Hamilton Tool Company, Hamilton, Ohio
Midwest Tool & Engineering Co., Dayton, O.

Emery Stands
Carroll Mfg. Co., L. W., Cincinnati, O.

Emery Wheel Dressers and Cutters
Desmond Stephen Mfg. Co., Urbana, Ohio
Western Tool & Mfg. Co., Springfield, O.

End Mills
Progressive Tool & Cutter Co., Ferndale, Mich.
Putnam Tool Co., Detroit, Mich.

Etching Machines, Electric
Brewster Co., William, 60 Church St., N. Y. C.
Luna Electric Equipment Co., Toledo, Oh.
Prints Electric Co., Detroit, Mich.

Exhaust Blowers
Buffalo Forge Co., Buffalo, N. Y.

Experimental Work
American Tool Works, Inc., Hartford, Conn.

Feeder Tubes
Sutton Tool Co., Detroit, Mich.

Feed Fingers
Morrison Mach. Products, Inc., Elmira, N. Y.

Feed Fingers for Auto. Screw Mchs.
Modern Collet & Machine Co., Ecorse, Mich.
Sutton Tool Co., Detroit, Mich.

Files
Grobet File Co., 8 Park Place, New York City

Files, Rotary
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Filing Machines
Continental Mch. Specialties, Minneapolis
Grob Bros., West Allis, Wis.
Hack Universal Die Making Machine Co., 460 N. Oakley Blvd., Chicago

Filing Room Equipment
Harvey Mfg. Co., 161 Grand St., New York
Oliver Instrument Co., Adrian, Mich.

Flexible Couplings
Wardwell Manufacturing Co., Cleveland, O.

Flexible Couplings
Ajax Flexible Coupling Co., Westfield, N. Y.
Leverjor Flex. Coupling Co., 6026 Lake, Chgo.

Flexible Shafts and Accessories
Wyzenbeek & Staff, Inc., 642 Washington Blvd., Chicago

Flexible Shaft Couplings
Leverjor Flex. Coupling Co., 6026 Lake, Chgo.
W. H. Nicholson & Co., Wilkes-Barre, Pa.

Flexible Shaft Machinery
Pratt & Whitney, Hartford, Conn.
Wyzenbeek & Staff, Inc., 642 Washington Blvd., Chicago

Floating Holders
Gairing Tool Co., Detroit, Mich.

Flue Lathes
Marshalltown Mfg. Co., Marshalltown, Ia.

Flue Welders
Marshalltown Mfg. Co., Marshalltown, Ia.

Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Forming Tools
Fanner Mfg. Co., 1873 Clybourn Av., Chgo.
Michigan Tool Co., Detroit, Mich.
Willey's Carbide Tool Co., Detroit, Mich.

Furniture, Machine Shop
Standard Pressed Steel Co., Jenkintown, Penna.

Gages
Western Tool & Mfg. Co., Springfield, O.

Gages, Chrome Plated
Comtor Co., Waltham, Mass.
Federal Products Corp., Providence, R. I.
Micro Products Co., Detroit, Mich.

Gages, Internal
Vince Tool Co., Detroit, Mich.

Gages, Gears, Spur and Helical
Vince Tool Co., Detroit, Mich.

Gages, Pin, Plug, Ring and Snap
American Tool Works, Inc., Hartford, Conn.

Gages, Special
Hartford Special Mch. Co., Hartford, Conn.

Gauges, Pressure
Vince Tool Co., Detroit, Mich.

Gear Cutters
Marshalltown Mfg. Co., Marshalltown, Ia.

Gears
Brown & Sharpe Mfg. Co., Providence, R. I.

Gears
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Gears
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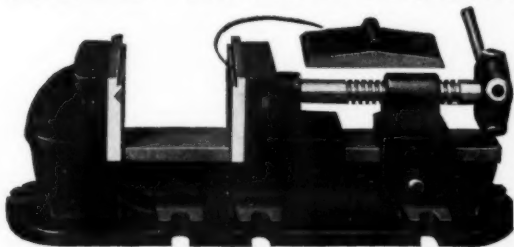
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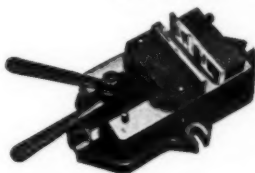
Classified Finding Index

- Gears, Master**
Vince Tool Co., Detroit, Mich.
- Gears, Worm**
Michigan Tool Co., Detroit, Mich.
- Gear Checking Machines**
Michigan Tool Co., Detroit, Mich.
- Gear Motors**
Star Mch. & Eng. Co., Bloomfield, N. J.
- Generators**
Chicago Electric Co., 1306 W. 23rd St., Chicago, Ill.
Janette Mfg. Co., 562 W. Monroe St., Chgo.
Star Mch. & Eng. Co., Bloomfield, N. J.
- Grease Cups**
Kane Brass Corp., Detroit, Mich.
- Grinders, Air**
M-B Products, Detroit, Mich.
- Grinders, Bench**
Baldor Electric Co., St. Louis, Mo.
Carroll Mfg. Co., L. W., Cincinnati, O.
Hammond Machinery Builders, Kalamazoo, Mich.
Vonnegut Moulder Corp., Indianapolis, Ind.
- Grinders, Disc**
Oliver Machinery Co., Grand Rapids, Mich.
Wynnebeck & Staff, Inc., 842 Washington Blvd., Chicago
- Grinders, Electric**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
Shilaw, Inc., 2304 Elston Av., Chicago, Ill.
Standard Electrical Tool Co., Cincinnati, O.
- Grinders, Electric Bench**
Baldor Electric Co., St. Louis, Mo.
Valley Electric Corp., St. Louis, Mo.
- Grinders, Flexible Shaft**
Mall Tool Co., 7743 S. Chicago Ave., Chicago
N. A. Strand & Co., 5001 N. Lincoln St., Chgo.
- Grinders, Hand**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
Dumore Co., Racine, Wis.
M-B Products, Detroit, Mich.
Shilaw, Inc., 2304 Elston Av., Chicago, Ill.
- Grinders, Heavy Duty**
Vonnegut Moulder Corp., Indianapolis, Ind.
- Grinders, High Speed**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
Dumore Co., Racine, Wis.
Mall Tool Co., 7743 S. Chicago Ave., Chicago
M-B Products, Detroit, Mich.
- Grinders, Pedestal Electric**
Baldor Electric Co., St. Louis, Mo.
Valley Electric Corp., St. Louis, Mo.
- Grinders, Swing Frame**
Vonnegut Moulder Corp., Indianapolis, Ind.
- Grinders and Polishers, Belt**
Oliver Machinery Co., Grand Rapids, Mich.
Porter-Cable Machine Co., Syracuse, N. Y.
Beyersford Foundry & Machine Co., Beyersford, Pa.
- Grinding Attachments, Drill**
Carlson Mfg. Co., C. H., Minneapolis, Minn.
Oliver Instrument Co., Adrian, Mich.
- Grinding, Centerless (Contract)**
Commercial Centerless Grinding Co., 6638 Carnegie Ave., Cleveland, Ohio
Porter Machine Co., Cincinnati, O.
- Grinding Machine Heads**
Fitchburg Grinding Machine Co., Fitchburg, Mass.
- Grinding Compound**
Timeaver Products Co., 338 Desplaines St., Chicago
- Grinding Machines, Belt**
Armiglo Co., Milwaukee, Wis.
Production Machine Co., Greenfield, Mass.
Wells Sales Corp., 96 Warren St., New York
- Grinding Machines, Cutter, Reamer and Tool**
Brown & Sharpe Mfg. Co., Providence, R. I.
National Machine Tool Co., Racine, Wis.
Oliver Instrument Co., Adrian, Mich.
- Grinding Machines, Drill**
Gallmeyer & Livingston Co., Grand Rapids
- Grinding Machines, Floor**
Hammond Mch. Builders, Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
- Grinding Machines, Internal**
Dumore Co., Racine, Wis.
National Machine Tool Co., Racine, Wis.
- Grinding Machines, Portable Electric**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
Dumore Co., Racine, Wis.
Mall Tool Co., 7743 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Pratt & Whitney, Hartford, Conn.
Strand Co., N. A., 5001 N. Lincoln St., Chgo
White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.
- Grinding Machines, Surface**
Gallmeyer & Livingston Co., Grand Rapids
Rogers & Co., Samuel C., Buffalo, N. Y.
- Grinding Machines, Tap**
Gallmeyer & Livingston Co., Grand Rapids
- Grinding Machines, Tool**
Hammond Machinery Builders, Kalamazoo, Mich.
Rogers & Co., Samuel C., Buffalo, N. Y.
- Grinding Machines, Universal**
Brown & Sharpe Mfg. Co., Providence, R. I.
- Grinding Service**
Machinists Tool Grinding & Mfg. Co., 3038 W. Van Buren, Chicago, Ill.
- Grinding Wheels**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
- Grinding Wheels, Mounted**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
- Grinding Wheels On Shanks**
Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.
- Hack Saw Blades**
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
- Hack Saw Machines**
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
Beyersford Foundry & Machine Co., Beyersford, Pa.
Wells Mfg. Corp., Three Rivers, Mich.
- Hammers, Electric**
Wedack Electric Tool Corp., 2629 W. Huron St., Chicago, Ill.
- Hammers, Tinnets**
Whitney Mfg. Co., W. A., Rockford, Ill.
- Hammers, Mallets and Malls**
Chicago Rawhide Mfg. Co., 1236 Elston Av., Chicago, Ill.
- Hammers, Riveting**
High Speed Hammer Co., Rochester, N. Y.
- Hammers, Soft Faced**
Greene Tweed & Co., 109 Duane St., New York, N. Y.
- Hand Pumps**
Blackmer Pump Co., Grand Rapids, Mich.
- Hand Punches**
Whitney Mfg. Co., W. A., Rockford, Ill.
- Hand Saws, Portable Electric**
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Milling, Slitting and Screw Slotting saws from 2" to 5 1/2" diameter can be sharpened in gangs up to 1 3/4" in thickness, with tooth spacing up to 3/4".

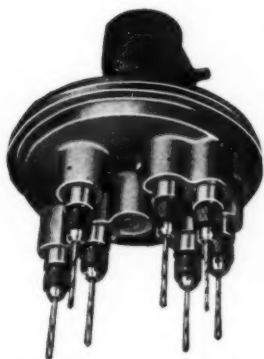
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Firm Manufacturing Co., Detroit, Mich.
- Hobs**
Michigan Tool Co., Detroit, Mich.
- Hole Cutters**
Wyszenbeck & Stoff, Inc., 642 Washington Blvd., Chicago
- Hollow Adjustable Mills**
Gairing Tool Co., Detroit, Mich.
- Hydraulic Valves**
Galland-Henning Mfg. Co., Milwaukee, Wis.
W. H. Nicholson & Co., Wilkes-Barre, Pa.
- Index Centers**
Brown & Sharpe Mfg. Co., Providence, R. I.
Wm. Carroll & Son, Norwood, Cincinnati, O.
- Indicating Dial**
Federal Products Corp., Providence, R. I.
- Indicators, Speed**
Greene Tweed & Co., 109 Duane St., New York, N. Y.
- Indicators, Surface Test**
Reich Mfg. Co., J. R., Dayton, Ohio
- Jigs and Fixtures**
American Tool Works, Inc., Hartford, Conn.
Hamilton Tool Company, Hamilton, Ohio
Hartford Special Mfg. Co., Hartford, Conn.
Henderson & Kaye, Batavia, Ill.
Siewek Tool Co., Ferndale, Mich.
- Keyseating Machines**
Hurr & Son, John T., Brooklyn, N. Y.
- Knife Grinders**
Rogers & Co., Samuel C., Buffalo, N. Y.
- Kouris and Holders, for Turrets**
Graham Manufacturing Co., Providence, R. I.
- Lapping Compound**
Timesaver Products Co., 33 S. Desplaines St., Chicago
- Lathe Centers**
Modern Mache, Corp., Brooklyn, N. Y.
Rigid Tool Holder Co., Detroit, Mich.
- Lathe Drives**
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Hardy & Brothers, Inc., Elmira, N. Y.
- Lathe, Automatic**
Jones & Lamson Mache. Co., Springfield, Vt.
- Lathe, Bench**
Atlas Free Co., Kalamazoo, Mich.
Delta Mfg. Co., Milwaukee, Wis.
Hardinge Brothers, Inc., Elmira, N. Y.
Rivett Lathe & Grinder Inc., Brighton, Boston
Sheldon Machine Co., 3255 Cottage Grove Ave., Chicago, Ill.
South Bend Lathe Works, South Bend, Ind.
- Lathe, Back Geared**
Rivett Lathe & Grinder, Inc., Brighton, Boston
South Bend Lathe Works, South Bend, Ind.
- Lathe, Brake Drum**
South Bend Lathe Works, South Bend, Ind.
- Lathe, Engine**
South Bend Lathe Works, South Bend, Ind.
- Lathe, Polishing and Buffing**
Hammond Machinery Builders, Kalamazoo, Mich.
- Lathe, Precision Bench**
Hardy & Brothers, Inc., Elmira, N. Y.
South Bend Lathe Works, South Bend, Ind.
- Lathe, Precision Bench Screw Cutting**
Hardinge Brothers, Inc., Elmira, N. Y.
South Bend Lathe Works, South Bend, Ind.
- Lathe, Screw Cutting**
South Bend Lathe Works, South Bend, Ind.
- Lathe, Speed**
Schauer Machine Co., Cincinnati, Ohio
- Lathe, Toolroom**
South Bend Lathe Works, South Bend, Ind.
- Lathe, Turret**
Jones & Lamson Mache. Co., Springfield, Vt.
- Layout Tables**
Parsons-Merritt Co., Van Dyke, Mich.
- Leader Pins, Steel**
Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.
- Leather Belting, All Types**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Leather Oil Retainers**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.
- Leather Pkg., Hydraulic & Pneumatic**
Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.
- Live Lathe Centers**
Modern Mache, Corp., Brooklyn, N. Y.
Sturdimatic Tool Co., Detroit, Mich.
- Lubricators, Air**
Kemper Brans Corp., Detroit, Mich.
Norgren C. A., Denver, Colorado
- Lubricators, Automatic**
Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.
Greene Tweed & Co., 109 Duane St., New York, N. Y.
M-B Products Co., Detroit, Mich.
Norgren Co., C. A., Denver, Colo.
- Mandrels, Expanding**
W. H. Nicholson & Co., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.
- Marking Machines**
Schmidt, Geo. T., Inc., 1802 Belle Plain Ave., Chicago, Ill.
- Micrometers**
Micro Products Co., Detroit, Mich.
- Milling Attachments**
Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Connecticut, Ohio
Wm. Carroll & Son, Norwood, Cincinnati, O.
Dairies Tools Co., Syracuse, N. Y.
Hack Union & Die Making Machine Co., 440 N. Oakley Blvd., Chicago, Ill.
Master Machine & Tool Co., North Kansas City, Mo.
- Milling Machines, Bench**
Burke Machine Tool Co., Connecticut, Ohio
Hardinge Brothers, Inc., Elmira, N. Y.
- Milling Machines, Precision Bench**
Brown & Sharpe Mfg. Co., Providence, R. I.
Hardinge Brothers, Inc., Elmira, N. Y.
- Milling Machines, Hand**
Burke Machine Tool Co., Connecticut, Ohio
- Milling Machines, Plain**
Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Connecticut, Ohio
- Meters**
Chicago Electric Co., 1338 W. 32nd St., Chicago, Ill.
Janette Mfg. Co., 552 W. Monroe St., Chgo.
- Meters, Small Universal**
Speedway Mfg. Co., Cicero, Ill.
- Motor-Generator Sets**
Chicago Electric Co., 1338 W. 32nd St., Chicago, Ill.
Janette Mfg. Co., 552 W. Monroe St., Chgo.
- Motor Drives, Universal**
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Stange Machinery Co., 15 S. Clinton St., Chicago, Ill.
- Motors, Electric Ball Bearing**
Valley Electric Corp., St. Louis, Mo.



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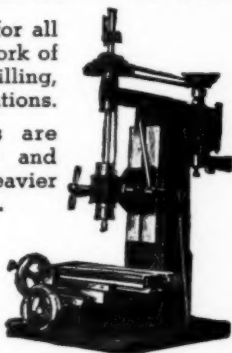
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Classified Finding Index

Motor Starters

The Lincoln Electric Co., Cleveland, O.

Moulds & Lathes, Hammer and Vise.

Johnson Tool Co., East Providence, R. I.

Multiple Oilers

Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.

Nibbling Machines

Libert Machine Co., Green Bay, Wis.

National Machine Tool Co., Racine, Wis.

Nitrided Products

Universal Eng. Corp., Frankensmuth, Mich.

Numbering Machines

Numberall Stamp & Tool Co., Staten Island, N. Y.

Oil Cups

Bowex Brass Corp., Detroit, Mich.

Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.

Oil Gauges

Bowex Brass Corp., Detroit, Mich.

Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.

Oil and Grease Seals

Gits Bros. Mfg. Co., 1860 S. Kilbourn, Chgo.

Operating Valves

Galland-Henning Mfg. Co., Milwaukee, Wis.

Packing, Hydraulic

Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Packings, Steam

Greene Tweed & Co., 100 Duane St., New York, N. Y.

Pins and Lacing for Belting

Chicago Rawhide Mfg. Co., 1200 Elston Av., Chicago, Ill.

Pins, Leader And Dowel

Acme Industrial Co., 419 N. Carpenter St., Chicago, Ill.

Baumbach Mfg. Co., R. A., 1812 So. Kilbourn Ave., Chicago

Pipe Cutters

Ridge Tool Co., Elyria, Ohio

Pipe Vises

Ridge Tool Co., Elyria, Ohio

Pipe Wrenches

Ridge Tool Co., Elyria, Ohio

Paint Thinning Machines

Offner Instrument Co., Adrian, Mich.

Press Brakes

Allsteel Press Co., 12015 S. Peoria St., Chicago

Deals & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

Press Feeds

Littell Machine Co., F. J., 4125 Ravenswood Ave., Chicago, Ill.

Wittak Mfg. Co., 4200 W. 24th Place, Chgo.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.

Greenard Arbor Press Co., Nashua, N. H.

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Sheldon Machine Co., 2256 Cottage Grove Ave., Chicago, Ill.

Wilson, E. R., Buffalo, N. Y.

Presses, Bench

Rockford Iron Works, Rockford, Ill.

Presses, Branching

Greenard Arbor Press Co., Nashua, N. H.

Presses, Foot

Rockford Iron Works, Rockford, Ill.

Royersford Foundry & Machine Co., Royersford, Pa.

Presses, Forming

Marshalltown Mfg. Co., Marshalltown, Ia.

Presses, High Speed

Super Speed Press Corp., 55 Liberty St., New York, N. Y.

Presses, Inclined

Federal Press Co., Elkhart, Indiana

Marshalltown Mfg. Co., Marshalltown, Ia.

Rockford Iron Works, Rockford, Ill.

Presses, Power

Allsteel Press Co., 12015 S. Peoria St., Chicago

Deals & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

Federal Press Co., Elkhart, Indiana

Rockford Iron Works, Rockford, Ill.

Presses, Punch

Deals & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

Lawthwaite Mch. Co., T. H., 311 E. 47th St., New York, N. Y.

Marshalltown Mfg. Co., Marshalltown, Ia.

Super Speed Press Corp., 55 Liberty St., New York, N. Y.

Presses, Sheet Metal

Federal Press Co., Elkhart, Indiana

Presses, Steel

Allsteel Press Co., 12015 S. Peoria St., Chicago

Pulleys, Die Cast

Conway Clutch Co., Cincinnati, O.

Pulleys, Steel and Wood

Deals Mfg. Co., Milwaukee, Wis.

Pulleys, Vacuum Cup

Vacuum Cup Metal Pulley Co., Detroit

Pumps

Blackmer Pump Co., Grand Rapids, Mich.

Brown & Sharpe Mfg. Co., Providence, R. I.

Galland-Henning Mfg. Co., Milwaukee, Wis.

Pumps, Coolant

Fulco Specialties Co., Hamtramck, O.

Ruthman Machinery Co., Cincinnati, Ohio

Tomkine-Johnson Co., Jackson, Mich.

Pumps, Lubricant

Ruthman Machinery Co., Cincinnati, Ohio

Punch, Shear and Bender, Hand

Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago

Buffalo Forge Co., Buffalo, N. Y.

Punches and Dies

Whitney Mfg. Co., W. A., Rockford, Ill.

Punches, Hand

Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago

Buffalo Forge Company, Buffalo, N. Y.

Lawthwaite Mch. Co., T. H., 311 E. 47th St., New York

Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lawthwaite Mch. Co., T. H., 311 E. 47th St., N. Y.

Pusher Tubes

Modern Collet & Machine Co., Ecorse, Mich.

Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Pyrometer Instrument Co., 102-106 Lafayette St., New York City

Pyrometers, Optical

Pyrometer Instrument Co., 102-106 Lafayette St., New York City

Pyrometers, Portable & Stationary

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago, Ill.

Pyrometer Inst. Co., 102 Lafayette, N. Y. C.

Pyrometers, Surface

Illinois Testing Laboratories, 150 W. Austin Ave., Chicago, Ill.

Pyrometer Instrument Co., 102-106 Lafayette St., New York City

Racks, Bar Stock

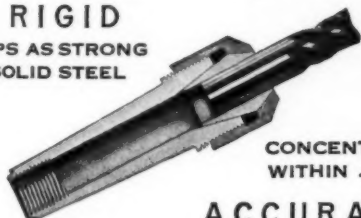
Wm. S. Yebo Supply Co., Canton, O.

Rivets, Tubular and Split

Chicago Rivet & Machine Co., 1865 S. 54th St., Cicero P. O. Chicago, Ill.

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60 in.	30 in.	2,000
72 in.	66 in.	5,000
96 in.	88 in.	10,000

Classified Finding Index

Riveters, Automatic Feed
Chicago Rivet & Machine Co., 1855 S. 54th
St., Cicero P. O., Chicago, Ill.

Riveters, Multiple Spindle
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machines
Grant Mfg. & Mch. Co., Bridgeport, Conn.
High Speed Hammer Co., Rochester, N. Y.
Linley Bros. Co., Bridgeport, Conn.

Riveting Machines, Tubular and Split
Chicago Rivet & Machine Co., 1855 S. 54th
St., Cicero P. O., Chicago, Ill.

Rod Cutters
Armstrong-Bloom Mfg. Co., 841 N. Francisco
Av., Chicago
Lowthwaite Mch. Co., T.H., 811 E. 47th, N.Y.

Rouler Bits
Fulton Tool Co., Detroit, Mich.

Saws, Electric Hand
Delta Mfg. Co., Milwaukee, Wis.

Saw Sharpening Machines
Engers & Co., Samuel C., Buffalo, N. Y.
Wardwell Manufacturing Co., Cleveland, O.

Sawing Machines
Continental Mch. Specialties, Minneapolis
Grob Brothers, Grafton, Wis.
Wells Mfg. Co., Three Rivers, Mich.

Scraping Mchs., Hand & Pneumatic
Anderson Bros. Mfg. Co., Rockford, Ill.

Screw Machine Parts
Modern Collet & Machine Co., Ecorse, Mich.

Screw Machine Tools
Banner Mfg. Co., 1874 Clybourn Av., Chgo.

Screw Machines, Automatic
Brown & Sharpe Mfg. Co., Providence, R.I.

Set Screws
Triplex Screw Co., Cleveland, Ohio

Set-Up Appliances
Standard Shop Equip. Co., Inc., Phila., Pa.

Shafts, Flexible
R. G. Haskins Co., 4854 W. Fulton, Chicago
Pratt & Whitney, Hartford, Conn.
Strand Co., N. A., 5801 N. Lincoln St., Chgo.
White Dental Mfg. Co., 19 E. 40th Street,
New York, N. Y.

Shafts, Hangers & Boxes
Delta Mfg. Co., Milwaukee, Wis.

Shafts, Steel
American Hollow Boring Co., Erie, Pa.

Shapers
Western Mch. Tool Wks., Holland, Mich.

Shaping Machines
Osborne & Sexton Mch. Co., Columbus, O.
Western Mch. Tool Wks., Holland, Mich.

Shears, Bevel
Marshalltown Mfg. Co., Marshalltown, Ia.

Shears, Hand
Armstrong-Bloom Mfg. Co., 841 N. Francisco
Av., Chicago
Beverly Throatless Shear Co., 3007 W.
110th Place, Chicago, Ill.
Lowthwaite Machine Co., T.H., 811 E. 47th
St., New York
The National Machine Tool Co., Racine, Wis.
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power
Buffalo Forge Co., Buffalo, N. Y.
Drels & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.
Libert Machine Co., Green Bay, Wis.

Shears, Slitting
Beverly Throatless Shear Co., 3007 W.
110th Place, Chicago, Ill.
Buffalo Forge Co., Buffalo, N. Y.
Drels & Krump Mfg. Co., 7440 Loomis
Bldg., Chicago, Ill.
National Machine Tool Co., Racine, Wis.

Shears, Splitting
Marshalltown Mfg. Co., Marshalltown, Ia.

Shears, Throatless
Beverly Throatless Shear Co., 3007 W.
110th Place, Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.

Sheet Metal Machinery
Libert Machine Co., Green Bay, Wis.

Shop Stools
Standard Pressed Steel Co., Jankintown,
Penna.

Sine Tables
Robb & Engineering Co., Detroit, Mich.

Spacing Collars
Seully-Jones & Co., 1905 S. Rockwell, Chicago

Special Tools and Machinery
American Tool Works, Inc., Hartford, Conn.

Speed Reducers
Abart Gear & Mch. Co., 4832 W. 16th St.,
Cicero, Ill.

Speed Saws, Universal
Wynnebank & Staff, Inc., 642 Washington
Bldg., Chicago

Spinning Lathes, Metal
Oliver Machinery Co., Grand Rapids, Mich.

Spools & Nuts for Auto. Screw Mchs.
Sutton Tool Co., Detroit, Mich.

Split Rivets
Chicago Rivet & Machine Co., 1855 S. 54th
St., Cicero P. O., Chicago, Ill.

Split Rivet Setters, Automatic Feed
Chicago Rivet & Machine Co., 1855 S. 54th
St., Cicero P. O., Chicago, Ill.

Spot Welding Machines, Speed.
Armco Co., Milwaukee, Wis.

Stake Riveters
Marshalltown Mfg. Co., Marshalltown, Ia.

Stampings
Hamilton Tool Co., Hamilton, Ohio

Steel Stamps
Colonial Bushings Co., Detroit, Mich.

Straightening Machines
Whitney Metal Tool Co., Rockford, Ill.

Stripping Units
Stripit Corp., Buffalo, N. Y.

Stud Setters
Apex Machine Co., Dayton, O.
Titan Tool Co., Fairview, Penna.

Tables, Elevating
Midwest Tool & Engineering Co., Dayton, O.

Tap Extractors
Walton Co., Hartford, Conn.

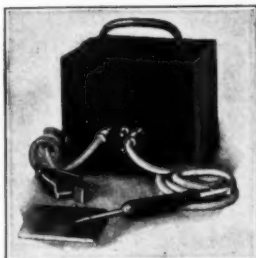
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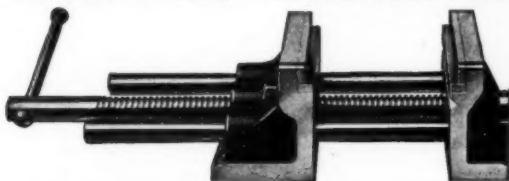
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Tap Holders

Proconer Safety Chuck Co., 14 S. Clinton St., Chicago
Scully-Jones & Co., 1905 S. Rockwell, Chicago

Tapping Machines

Etico Tool Co., Brooklyn, N. Y.
Rickert-Shafer Co., Erie, Pa.
Western Mch. Tool Wks., Holland, Mich.

Tapping Attachments

Errington Mch. Lab., Staten Island, N. Y.
Etico Tool Co., Brooklyn, N. Y.
Proconer Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.
Western Mch. Tool Wks., Holland, Mich.

Tapping Jigs, Universal

Henderson & Kaye, Batavia, Ill.

Tapping Machines and Attachments

Burke Machine Tool Co., Conneaut, Ohio
Cleereman Mch. Tool Co., Green Bay, Wis.
Etico Tool Co., 694 Johnson Av., Brooklyn, N. Y.
Proconer Safety Chuck Co., 14 So. Clinton St., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 150 West Austin Ave., Chicago, Ill.

Threading Machines, Automatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.
Jones & Lamson Mch. Co., Springfield, Vt.
Rickert-Shafer Co., Erie, Pa.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Ridge Tool Co., Wythe, Ohio
Rivett Lath & Grindstone, Brighton, Boston

Tool Heads, Universal

Precision Tool Co., Bridgeport, Conn.

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Michigan Tool Co., Detroit, Mich.
Rigid Toolholder Co., Detroit, Mich.
Western Tool & Mfg. Co., Springfield, O.

Tool Reclaiming

Machinists Tool Grinding & Mfg. Co., 8008 W. Van Buren, Chicago, Ill.

Tools

Vince Tool Co., Detroit, Mich.

Tools, Abrasive

White Dental Mfg. Co., 10 E. 40th Street, New York, N. Y.

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Gairing Tool Co., Detroit, Mich.

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Brown & Sharpe Mfg. Co., Providence, R. I.

Tools, Multi-Diameter

Gairing Tool Co., Detroit, Mich.

Transfer Punches

McMahon Co., Frank, Dayton, Ohio

Tube Fittings

Essex Brass Corp., Detroit, Mich.

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Tubular Rivet Setters, Automatic Fd.

Chicago Rivet & Machine Co., 1555 S. 54th St., Cicero P. O., Chicago, Ill.

Tungsten Carbide Tools

Michigan Tool Co., Detroit, Mich.

Turning Tools

Banner Mfg. Co., 1873 Clybourn Av., Chgo.
R & L Tools, Nicetown, Phila., Pa.

Universal Drill Jigs

Henderson & Kaye, Batavia, Ill.

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Apex Machine Co., Dayton, O.
Chicago Gear Works, 169 W. Jackson Blvd., Chicago

Used and Rebuilt Machinery

Aaron Machinery Co., 176 Lafayette St., New York City
Adams Mch. Co., 134 S. Clinton, Chicago
Belyea Co., Inc., 160 W. 18th St., New York, N. Y.
Bennet-Raffin Corp., 30 Church St., N. Y. N. Y.
Bernstein & Co., Geo. M., 128, Clinton, Chgo.
Hiser Mfg. & Mch. Co., Springfield, Ill.
Botwinik Brothers, New Haven, Conn.
Bradley Machinery Co., Detroit, Mich.
Brandt Mch. Sales, Pittsburgh, Pa.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Burns Mch. Co., F. W., Milwaukee, Wis.
Cincinnati Mch. & Supply Co., Cincinnati, O.
Clark Machinery Co., Cleveland, O.
Clinton Mch. Co., 33 S. Clinton St., Chgo.
Dallitz, Harry, Cleveland, O.
Delta Equipment Co., Philadelphia, Pa.
Eastern Machinery Co., Cincinnati, O.
Ermann, Louis E. & Co., 1361 E. 1st St., Chicago, Ill.
Erie Electric Motor Repair, Inc., Buffalo, N. Y.
Healey Machinery Co., E. L., 825 Beas St., Chicago, Ill.
Falk Mill Supply Co., Inc., Rochester, N. Y., Pa.
Foster Machinery Co., Cleveland, Ohio
Ganey Machinery Co., Buffalo, N. Y.
General Blower Co., 401 N. Peoria St., Chgo.
George, James W., Detroit, Mich.
Goldman, Harvey H., Detroit, Mich.
Great States Mfg. Co., Kansas City, Mo.
Hill, Clark & Co., 645 W. Washington Blvd., Chicago, Ill.
Hewarth Mch. Co., Inc., C. C., Detroit, Mich.
Hyman & Sons, Joseph, Philadelphia, Pa.
Indianapolis Machinery & Supply Company, Indianapolis, Ind.
Industrial Mch. Co., Indianapolis, Ind.
Interstate Mch. Co., 109 S. Clinton, Chgo.
Iroquois Machinery Co., Buffalo, N. Y.
Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, Ohio
Jones Mch. Co., Royal Oak, Mich.
Kinney Co., E. A., Cincinnati, Ohio
Lang Machinery Co., Pittsburgh, Pa.
Loran, J. L., Bridgeport, Conn.
McDonald Machinery Co., St. Louis
Machinery Dealers, Inc., New Haven, Conn.
Marr-Guthrie Mch. Co., Pittsburgh, Pa.
Midwest Equipment Co., 625 W. Lake St., Chicago, Ill.
Miles Machinery Co., Saginaw, W. S., Mich.
Moller Machinery Co., Charles L., 120 S. Clinton St., Chicago, Ill.
Moray & Co., 45 Mill St., Astoria, Long Island, N. Y.
Norton Machinery Co., Cleveland, Ohio
Norton-Broadway Machinery Co., Cincinnati, Ohio
O'Brien Machinery Co., Philadelphia
Ott Mch. & Supply Co., Cincinnati, Ohio
Ott Machinery Sales Co., Detroit, Mich.
Osborne & Sexton Mch. Co., Columbus, O.
Passman Brothers, 706 Washington Blvd., Chicago, Ill.
Prutton Mch. Co., D. H., Cleveland, Ohio
Raffanese Machinery Sales Co., Pittsburgh, Pa.
Rosenfeld Mch. Corp., 960 W. Lake, Chgo.



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Classified Finding Index

Used and Rebuilt Machinery—Cont.

Kaenkrantz & Welshacker, 2209 A. Singer Bldg., New York City
Smith-Bamshach Mch. Co., 4607 W. 26th St., Chicago
Sagel Machinery Co., 117 S. Clinton St., Chicago, Ill.

Service Co., Cleveland, Ohio
Shunk Mfg. Co., Bucyrus, O.
Summons Machine Tool Corp., Albany, N. Y.
Standard Mch. Co., Grand Rapids, Mich.
Strong, Carlisle & Hammond Co., Cleveland
Sun Machinery Co., 28 Van Buren Street, Newark, N. J.
Surniss Material & Machinery Co., Detroit
Surplus Stock & Mch. Co., Inc., 618 W. Lake St., Chicago, Ill.
United Mch. & Supply Co., St. Louis, Mo.
Victor Machinery Co., 130 S. Clinton Street, Chicago, Ill.
Victor Machinery Exchange 251 Centre St., New York, N. Y.

Vine, R. A., Detroit, Mich.
Wain Mch. Sales, Chas. E., Detroit, Mich.
Wertman Machinery Co., Cleveland, Ohio
West Penn Machinery Co., Pittsburgh, Pa.
White Mch. Co., A. D., 108 N. Jefferson St., Chicago
Wigglesworth Mch. Co., Cambridge, Mass.

Vacuum Cleaners, Portable

Brewer Elec. Co., 345 Blackhawk St., Chgo.

Vacuum Cleaners, Industrial

Brewer Elec. Co., 345 Blackhawk St., Chgo.

Valves, Air

Ross Operating Valve Co., Detroit, Mich.

Valves

Galland-Hanning Mfg. Co., Milwaukee, Wis.
Ross Operating Valve Co., Detroit, Mich.

Valves, Foot, Lever & Solenoid

Mihalson & Co., W. H., Wilkes-Barre, Pa.
Ross Operating Valve Co., Detroit, Mich.

Valves, Operating

Ross Operating Valve Co., Detroit, Mich.
Tunkin-Johnson Co., Jackson, Mich.

Vises, Combination Drill Table

Modern Machine Tool Co., Jackson, Mich.

Vises, Drilling Machine

Armstrong-Helm Mfg. Co., 341 N. Francisco Ave., Chicago
Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago
Dormond Stephan Mfg. Co., Urbana, O.
Graham Manufacturing Co., Providence, R. I.
L. W. Chuck Co., Toledo, Ohio
Martin Tool & Die Works, J. E., Springfield, O.
Modern Machine Tool Co., Jackson, Mich.
National Machine Tool Co., Racine, Wis.
Odin Universal Corp., 110 S. Dearborn, Chgo.
Sheldon Machine Co., 3335 Cottage Grove Ave., Chicago, Ill.

Vises, Drill

Johnson Tool Co., East Providence, R. I.
Modern Machine Tool Co., Jackson, Mich.
Plunket Mch. Co., 1823 W. Lake St., Chgo.

Vises, Machinists'

Dormond Stephan Mfg. Co., Urbana, Ohio
L. W. Chuck Co., Toledo, Ohio
Odin Universal Corp., 110 S. Dearborn, Chgo.
Sheldon Machine Co., 3335 Cottage Grove Ave., Chicago, Ill.
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.
Hartford Special Mch. Co., Hartford, Conn.
L. W. Chuck Co., Toledo, Ohio
Odin Universal Corp., 110 S. Dearborn, Chgo.
Plunket Mch. Co., 1823 W. Lake St., Chgo.
Sheldon Machine Co., 3335 Cottage Grove Ave., Chicago, Ill.

Vises, Precision

Odin Universal Corp., 110 S. Dearborn, Chgo.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.
L. W. Chuck Co., Toledo, Ohio
Odin Universal Corp., 110 S. Dearborn, Chgo.
Plunket Mch. Co., 1823 W. Lake St., Chgo.

Vises, Special

Modern Machine Tool Co., Jackson, Mich.

Welders, Arc

Hobart Brothers, Troy, Ohio
Lincoln Electric Co., Cleveland, Ohio

Welders, Portable

Hobart Brothers, Troy, Ohio

Welders' Glass

Fank, F. R., 405 Penn. Av., Pittsburgh, Pa.

Welding Accessories

The Lincoln Electric Co., Cleveland, O.

Welding Electrodes and Holders

The Lincoln Electric Co., Cleveland, O.

Welding Generators, Arc

The Lincoln Electric Co., Cleveland, O.

Welding Goggles

The Lincoln Electric Co., Cleveland, O.

Welding Lens, Arc

The Lincoln Electric Co., Cleveland, O.

Welding Machines, Electric Spot

Armco Co., Milwaukee, Wis.
Esler Engineering Co., Inc., Newark, N. J.
Hobart Brothers, Troy, Ohio
Interstate Machinery Co., Chicago, Ill.
Pier Equipment Co., Benton Harbor, Mich.

Welding Machines and Equipment, E. I. Arc

The Lincoln Electric Co., Cleveland, O.

Welding Machines, Resistance

Armco Co., Milwaukee, Wis.
Esler Engineering Co., Inc., Newark, N. J.
Lincoln Electric Co., Cleveland, Ohio
Pier Equip. Mfg. Co., Benton Harbor, Mich.

Wheels, Grinding

Chicago Wheel & Mfg. Co., 1101 W. Monroe St., Chicago, Ill.

Woodworking Machinery

Tannowitz Works, Grand Rapids, Mich.

Worm Drives

Michigan Tool Co., Detroit, Mich.

Worm Gear Motor Units


Star Mch. & Eng. Co., Bloomfield, N. J.

Wrenches, Reversible

Greene Tread & Co., 109 Duane St., New York, N. Y.

Chicago Rawhide

HAMMERS



Chicago Rawhide Hammers Stop Battering, Breaking and Marring. Save surfaces, parts and machines. These are permanent "soft" hammers that take replaceable insert faces of tough coiled rawhide that absorbs shock (does not "bounce.") Unequalled for assembly, die-setting, pounding in motor windings, etc., etc., for they never split, crumble or smear. Write for circular.



CHICAGO Rawhide MFG. CO.
1282 ELSTON AVE. CHICAGO U.S.A.



Ben Weiss Killed in Auto Accident

As we go to press we are shocked by the news that Ben Weiss, president of the Interstate Machinery Company, Chicago, was killed in an automobile accident Tuesday, July 20, near Watertown, Wisconsin.

Mr. Weiss' business ability and kindly nature won for him many friends in the machinery trade. He was treasurer of the National Association of Machinery Builders and a member of the Illinois Chamber of Commerce. He was affiliated with several charitable organizations.

He founded the Interstate Machinery Company fifteen years ago, after giving up a small business in the machine shop jobbing trade. From a small concern, it has grown into a large company now located in new quarters at Clinton and Monroe Streets, Chicago.

Mr. Weiss is survived by his wife, a son, Joseph, treasurer of the company, and two daughters.

FREE BUYERS' SERVICE

To All of Our Readers

If you will list below the new or used metal-working machines or machine shop equipment for which you are in the market, and mail it to us, we shall be glad to broadcast it to all of our advertisers. Replies will come from them, not from us.

But if you prefer that we put you in direct touch with the manufacturers of any particular machine tool or other metal-working equipment, let us know and we will endeavor to locate them for you.

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Address

We are in the market for

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Mail to Hitchcock Publishing Co., 508 So. Dearborn St., Chicago, Ill.

Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the enclosed printed form to make known your wants in either new or used machinery and the publisher will gladly pass them along to the advertisers.

FOR SALE BY

Great States Mfg. Co.,	1601 E. 39th St.,	Kansas City, Mo.
Die filing machine, Oliver.	Shaper, 16" Smith & Mills, complete	
Pan brake, 5' Dreis & Krump, with	with vise.	
fingers and all attachments.		

FOR SALE BY

Failler-Strafer Machinery Co.,	136 Liberty St., New York
Bar shear, 6" sq.	Motor, 150 h. p. 900 rpm. 440-60-3.
Boring mill, 54" Colburn,	Multi. punch No 5 H. & J. 7' 8".
Conveyor and chain, 300', 4" links.	Press, forging 1000 ton Mesta S-H.
Grinder, No. 14 P. & W. surface b.b.	Planer, Cin. 30" x 20' 4H box table.
Lathe, 3"x36" J. & L. bar & chuck'g.	Sq. shear, 8' x 14 ga. Geo. Ohl.

FOR SALE BY

General Blower Co., . . . **401 N. Peoria St., Chicago, Ill.**

BLOWERS—FANS—EXHAUSTERS.

For Dust Collecting — Ventilating.
Oil and gas burners, cupolas, furnaces, etc.
Roots—Connersville and centrifugal blowers.

What are your blower requirements?

FOR SALE BY

Aaron Machinery Co.,	176 Lafayette Street, New York, N. Y.
Bolt threaders, 2 Acme.	Lathes, all sizes.
Die filer, Cochrane-Bly.	Lathe, Milholland turret, 18".
Drill, upright, 28", tap. att.	Lathes, McCabe 2 spindle.
Engraving machine, Gorton 3Z, 3X.	Miller, Becker vert., m. d.
Gear hobber, 24" Rhenania.	Press, Bliss 20-H power.
Keyseater, 3" cap., tilt. table.	Shear, Lennox throatless, 1" cap.

FOR SALE BY

D. H. Prutton Mchy. Co.,	5295 W. 130th St.,	Cleveland, Ohio
Automatic, Cleveland 1" model A.	Schuchardt & Schutte.	
Automatic, Cleveland 2" model A.	Grinder, disc, No. 120 Gardner.	
Chucker, 1" Cleveland model M	Tappers, (5) Webster & Perks 5	
automatic.	spindle vertical.	
Drills, 1" cap. Demco 4 spindle,	Press, No. 106 Bliss.	
power feed, b. b. (3)	Press, cam drawing, No. 1 Bliss.	
Gear hobbers, No. 0 and No. 1.	Presses, No. 4 & 5 Zeh & H. incl.	

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

55 Water St., Pittsburgh, Pa.

Air comp., 10x8" Ing-Rand, ER-1.
Blower & exhauster, 44" outlet, 1/3 H. P. 1/60 (3).
Bolt threader, 24" Landis dbl., m. d.
Boring mill, 42" Bullard, 1 swivel and 1 turret head, m. d., p. r. t.
Boring mill, N-B-P., fir., 2 columns, 6" bars, with separate milling hd., motors 220-v. d. c.
Boring mill, 30" Colburn, turret hd.
Boring mill, 30" Bullard V T L, threading attachment.
Brake, 4'x10 ga. Robinson, hand.
Brake, 7'x18 ga. Robinson, hand.
Brake, 8x22 ga. Double Truss hand.
Brake lining, punch and riveting machine, m. d.
Compr., cent. 75 h.p. G. E., 3/60/220.
Crimping & corrugating machine, 10"x16 Ga., Keene.
Crusher, No. 1 Williams Little G., b. d.
Die miller, Thurston-Schott, 650 lbs.
Die sinker, No. 3 P. & W., r. t.
Drill, portable elect. 1/2" Black & D.
Drill, 24" Aurora, t. a., m. d.
Drill, 28" Superior, b. g., power fd.
Drill, No. 11-B, Naico, 16-sp., m. d.
Drill, mult. 12 P. & W. 10 spindle.
Drill, rad., 24" Fossdick & Holloway.
Drill, radial, 3" Dreses, tapping att.
Drill, radial, 34" Canedy-Otto.
Drill Radial, 4" Dreses, gr. box m. d.
Forging mch., 1 1/2" Acme; 2 1/2" Ajax.
Furnace, temp. & hardening 24x12x8".
Grinder, surf., Prod., 15x5' table.
Grinders, univ. tool & cutter, 1 & 1 1/2 Cincinnati.
Grinder, univ. T & C. No. 2 Woods.
Grinder, univ. No. 3 Cin. 16"x48", m. d.
Grinder, pl. 11 B. & S. 4x30" (cheap).
Grinders, univ. Bath 10"x36", mag. chuck 9x31".
Grinder Disc, No. 2 Gardner, 20" wheels, m. d. 3/60/220.
Hammer, power, 50 lb. Boss, b. d.
Hammer, power, 50 lb. Little Giant.
Hammer, 100 lb. Mayer, power.
Hammer, 200 lb. Beaudry, power.
Hammer, 400 lb. Bliss board drop, b. d.
Hammer, 800 lb. Erie SF steam or air.
Hammer, 1000 lb. Chamber's drop.
Hammer, stm. drop, 1500 lb. (nr. new).
Hammer, Syntron Elec., 1/60/110".
Hoist, chain, 4-ton triplex, Y. & T.
Jointer, bench, 4" Wallace, m. d.
Keyseater, Norton, cap. 24x24".
Keyseater, No. 2 Catlin, cap. 2"x15".
Keyseater, No. 3 Mitts & M., belt.
Lathes, 9"x3": 10"x4", plain change.
Lathe, 12"x5" Hendey, gh. ta.
Lathe, 16"x12" L. & S., q. c. g., ta.
Lathe, 16"x7" National, q. c. g., (3).
Lathe, 18"x8" Superior, q. c. g., d. b. g.
Lathe, 20"x10" Johnson q. c. g., t. a.,

chuck.
Lathe, 22"x12" Rahn-Larmon, q. c. g.
Lathes, 42"x30" Bridge'd g. h., m. d.
Lathe, turret, No. 4 W. & S., bar feed, m. d., g. f. h. (2).
Miller, univ. No. 2 Cin., serial 2530-U.
Miller, No. 2 Brown & S. pl. cone.
Miller, pl., No. 15 Garvin, 42x10x21".
Miller, No. 4 Ohio, table 101".
Pipe cutter, 3" Murchey, motor 3/60/440 v.
Pipe machine, 2" Robbins, bench, motor 1/60.
Pipe machine, 12" Cox., b. d.
Pipe machine, 12" E. C. & B., a. p. d.
Pipe machine, 18" Wieland, m. d.
Planer, 24"x24"x6" Gray, 1 head.
Planer, Gray, 56x48x10", 4 heads.
Polishing stand, 3 HP. U.S., 3/60/220.
Press, arbor 30 ton Lourie, Hyd.
Press 77 1/2 Bliss, T. R., 10" str. dbg.
Press, foot, 1-A Bliss-Con. 400 lbs.
Press, OBI No. 2 Toledo, pl. 3 1/2" str.
Press, OBI No. 21 Bliss, 1 1/2" & 2" str. (3).
Press, No. 78 1/2 Bliss T. R., 10" str.
Press, Farrell D. C. bed 34x36" wgt. 13,700 lbs.
Press, P-3 Ferracite m. d. (3).
Press or shear, United ob., 3 1/2" shaft, m. d. (2).
Press, Horn., No. 160 Stoll, 2 1/2" str. 1450 lbs.
Pump, cent. 700 GPM., 4" disc.
Pump, tripl., 1 1/2"x4" Worthington, b. d.
Punch, triple combination Pels 16., m. d.
Punch & shear, 25x24 U. Buffalo.
Punch and shear, No. 3 L. & A., 3 1/2"x3", 14" throat.
Punch and shear, No. 12 Badger combined, b. d.
Punch, & sh. hand, No. 3B. Beloit 5/16"x3".
Punches, hand No. 6 Kidder.
Punch & shear, S. E. Clev. "C" 20" tht.
Punch, s. c. rapid, No. 000 H. & J., 16" throat.
Punch, gang No. 6 Niagara 48".
Riveter, 4-A, high spd., belt, or m. d.
Riveters, Shus'er, 1/2" & 3/16", belted.
Riveter, No. 120 Grant, cap. 1/2", m. d.
Saw, No. 10 Racine 9x9", belted.
Saw, cold, No. 7 Espen-L., 15" belt.
Saw, cold, No. 1 Newton, 4 1/2" belt.
Saw, hack, No. 4 Marvel, m. d.
Saw, No. 1 Marvel hack, 4"x4", b. d.
Saw, 6"x6" Racine hack, gear box, belt drive.
Shaper, 14" Steptoe, sbg.
Shapers, 14" Hendey, for m. d.
Shaper, 15" Springfield, sbg; belt.
Shaper, 15" Blount, friction type.
Shaper, 20" G. & E. b. g., m. d.
Shaper, 21" Smith & Mills.

USED AND REBUILT MACHINERY

Marr-Galbreath Machinery Co. -Continued

Shapers, 18", 20" & 24", G & E, cone.
Shaper, 24" Barker b. g. V-ram, b. d.
Shaper, 24" G. & E. motor 220-volt, d. c.
Shaper, 24" American b. g. crk., b. d.
Shaper, 35" Hendey friction vise.
Shear, angle 8x8x14" H & J. m. d.
Shear, angle, 6x6x14" Kling., m. d.
Shear, squaring, power 45"x14 ga.
Shear Rotary 232 Bliss 14 ga.
Testing mach. 100 Ton Olson, com.
Tearing machines 600 & 1000 lb. hand.
Truck, Cowan Transveyor 5000 lb.
hand.

Shear, throatless 18-M Marshall-
town, motor drive.
Shear, bar 3" United, 24" blade, m. d.
Steam turbines, 100 h. p. 900 rev (2).
Straightener, 4"x20" Shuster, cut-off.
Turret lathe, 18"x34" Libby, m. d.
Valve refacer, Kwik-Way, cabinet
base, m. d.
Welder, Arc 300 amp. 3/60/220.
Welders, arc, 35 amp., transformer.
Welding & cutting generator, Carbic
Wheel press, 60 ton 34"x34", b. d.

Partial List. Get Our New Complete Stock List.

FOR SALE BY

Foster Machinery Co.,	3982 Bluestone Rd.,	Cleveland O.
Air compressor, 6"x5" Bury, tank and gauges.	Draw bench, 10,000 Pull 12" draw.	
Bolt cutter, 14" Acme Class "A" with USS & SAE dies.	Drill, multi, No. 2 Bausch, cap. 24 drills, head 17"x32".	
	Riveter, 50 ton Hanna.	

FOR SALE BY

J. Messer Mfg. & Machy. Co.,	16th & Madison St., Springfield, Ill.
Angle shear, Badger No. E-1.	Punch, Cleveland 4" thru 4".
Lathe, 36"x18" L. & S. arr. m. d. \$1500.	Radial drill, 7' Bement.
Lathe, 24"x16" Prentice..... 395.	Switch panel, 2200 v. 100 h. p.
Miller, No. 6 Transit.	Trip hammer, 150 lb. Champion.
Milling machine, internat'l, 26x8P.	Valve refacer, B. & D. univ. m. d. \$50.

FOR SALE BY

H. L. Merton Mchry. Co., 1078 Carlyon Road, East Cleveland, O.
Boring mills, Bullard Mult-Au-Matics, 6 spindles, 8" machines, 80% new (2).
Gear cutter, 60"x6" Brown & Sharpe.
Gear hobber, 5A Lees-Bradner.
Grinder, chucking, No. 28 Bryant; new in 1931, used 6 months.
Lathe, 21"x10" LeBlond, q. c. g., cone pulley, m. d.
Lathe, turret, No. 2 W. & S., bar fd & collets, power feed to turret, cone pulley.
Mill, No. 2B heavy Brown & Sharpe plain, s. p. d.
Nibbler, Campbell No. 2, motor drive.
Press, No. 21 Bliss, o. b. i., 24" stroke.

FOR SALE BY

Service Co.,	3732 Cedar Ave., Cleveland, Ohio
	WELDERS
Dual Arc 200 amp. with Continental engine (1).	Lincoln 300-amp., gas engine dr. (2).
Rebuilt 200-amp. Westinghouse A.C. stationary (3).	Lincoln 200-amp., gas engine dr. (3).
General Electric 200-amp. A.C. (2).	Lincoln 400-amp., gas engine dr. (6).
General Electric 400-amp. A.C. (3).	Lincoln 300-amp., A.C., D.C. (2).
U. S. L. 200-amp. A.C. (1).	Transformer type A. C. welders, 220-440 volt (7).
Lincoln 200 ampere with 6 cylinder Packard engine (1).	Westinghouse 200 amp. with Con- tinental engine (1).

We rebuild, buy and sell welders.

USED AND REBUILT MACHINERY

FOR SALE BY

The O'Brien Machinery Co., 113 N. Third St., Philadelphia, Pa.

Band saw, 42" American, V belt, m. d.
Boring mill, 24" Bullard New Era.
Boring mill, 160" N.B.P. mtr. dr.
163" swing, 82" under rail, rapid
traverse.
Boring mill, 24" Bullard, rap. prod.,
threading attachment.
Boring mill, 36" Bridgeport.
Crane, 36' Gantry, 30 ton, hand oper.
Drill, 6' Mueller radial, mtr. dr.
Drill, D2 Colburn, 3" cap.
Grinder, No. 103 Rivett, internal
holecap. 1/64" to 2".
Grinder, 12"x24" Modern cylindrical.
Hammer, 800 lb. Erie, steam forging.
Hammer, 1100 lb. NBP. steam forg.
Hammer, 2000 lb. Chambersburg
double frame steam.

Lathe, 19"x8" Sidney, heavy duty,
belt dr. quick change.
Lathe, 30x24 New Haven, belt.
Lathe, turret, 3A Warner & Swasey
S. P. drive, cap. 34".
Miller, No. 3 LeBlond plain, belt
drive, table 12"x60", quick chge.
Miller, No. 2 Kemp Smith, plain,
table 10"x48", belt drive.
Miller, No. 3 Cincinnati plain, table
76"x19", s. p. drive.
Miller, Model D, Becker vertical
table 96"x30".
Pipe machines, 2, 4, 6, 8 and 12"
belt and motor drive.
Shapers, 14, 16, 20 & 24" various makes
Shear, 30" throat Quickwork rotary,
3/16" capacity.

FOR SALE BY

Belyea Company, Inc., 150 W. 18th St., New York, N. Y.

D. C. MOTORS

Adj. Speed—230 Volt

H. P.	MAKE	TYPE	SPEED
1—400	West.		400/600
1—600	G. E.	MPC	160/300
2—300	G. E.	MPC	300/600
1—125	G. E.	DMC	150/300
1—125	West.	SK 210	225/900
8—120	G. E.	DMC	300/750
2—80	Diehl	K11-40	550/1100
1—75	G. E.	CD	575/870
1—60	West.	SK	107/160
2—60	El. Dy.	2S5	450/1200
5—60	El. Dy.	2S5	525/1050
2—50	West.	SK-190	225/600
1—50	West.	SK 160	600/1200
12—40/50	Cr. Wh.	EM	175/700
1—40	West.		300/900
2—35	West.	SK	500/1500
1—30	El. Dy BB.	10-S	800/1600
12—20	G. E.	LC	650/1950
2—7½	G. E.	RF-10A	450/1800
12—7½	West.	SK 80L	400/1600
12—7½	West.	SK-70L	800/1500
14—5	West.	SK-70L	400/1600
10—3½	West.	SK-40	450/1800

MOTOR GEN. SETS,

3—1250/1500 k. w. Westinghouse, 3
unit M. G. sets consisting of:
2—625/750 k. w. DC Gen. 125 v.,
600 RPM coupled on each end of:
1—1930 k. v. a. synch. motor, 2200
v. 600 rpm. 3 ph., 60 cy.
1—22½ k. w. type SK, 125 v., 600
rpm. exciter.
1—1000 k. w., G. E. type M. P. C.,
D. C. Gen. 250 v., conn. to 1400
h. p. type ATI, synch. motor,
6600/2300 v., 514 r.p.m. 3 ph., 60 cy.

350 KW G. E. 3 unit Synch. Motor
Gen. Set consisting of 2 125 KW
Interpole, DC, 125 V. generators
coupled on each end of 1—390 HP
Synch. Motor, 6600 V., 3 Ph., 25
Cy., 750 RPM.

2—250 KW G. E. DC Gen., 250 v.
conn to Synch. Motor, Type ATI,
2300 V., 720 RPM. 3 ph., 60 cy.

A. C. MOTORS—60 CYCLES

H.P.	TYPE	VOLTS	SPEED
1500	G. E., ATI	440/220	180
500	G. E.	440	1200
450	West.	440/220	257
375	G. E., ATI	600	2300
350	Cr. Wh.,	720	2300/440
225	E. Mchly 3Br	2300/4150	450
220	G. E., ATI	2300	900

SLIP RING TYPE

450	West. CW	2200	875/700
400	West. CW	1416	2200
400	G. E. MT	424	4150/2300
400	West. CW	2300	514
300	Al. Ch ANY	2200	585
300	West CW	1800	440/220
250	G. E. MT-424Y	4000/2300	257
250	F. Morse BV	2200	1200
250	West. CW	440/220	585
225	G. E.	440/220	1800
200	West CW	440/220	575
200	West CW	2200/550	870

SQUIRREL CAGE TYPE

1—250	West. CS	2300/440	580
1—200	G. E., IK	550	600
1—200	West. CS	876A	220/440
1—100	G. E., IK	15	440/220
1—100	West. Vert. CS	440/220	1200

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1210 House Building,

Pittsburgh, Pa.

Air compressors, 30 to 2500 cu. ft.
 Beader, Yoder, 12 ga. m. d.
 Blower, No. 4 Roots, cap. 2110 c.f.m.
 Bolt cutter, Acme 2', belt drive.
 Bor. mills, 24" Bullard New Era.
 Boring mill, 42" King, b. d.
 Boring mill, 60" Colburn, 2 hds., spd.
 Boring mill, 62" Betts, 2 heads, b. d.
 Boring mill, 14", b. d.
 Bor. mill, hor. 5' bar Barrett, m. d.
 Brake, 7 x 10 ga. D. & K. m. d.
 Brakes, 3' x 3/16" Chicago, m. d.
 Bulldozers, Nos. 3, 4, 6, 9, 28, & 30.
 Cranes, Electric Traveling.
 Crane, crawler, gas., No. 2 No'wes.
 Draw bench 20000 lb. W. F.
 Drill, radial, 4' Prentice, t. a., b. d.
 Drill, rad. 5' Cincinnati-Bick., m. d.
 Drill, radial, 5' American, s. p. d.
 Drill, rad. 6' Reed-Prentice, s. p. d.
 Drill, mult. 24 sp. No. 30 Natco.
 Drills, upright 10" to 36".
 Drill, press, 6 spindle Allen.
 Engine, gas, 20 h. p. Bessemer.
 Flanger, McCabe, 1/2" capacity, dies.
 Gear cutters, 11", 18" & 24" Gleason.
 Gear tester, bevel 18" Gleason.
 Grinder, roll, Farrel 28"x64"
 Grinder, d. s. 2 h. p. 220/440/3/60.
 Grinder, D. E., 3HP, 220/3/60.
 Grinder, disc, No. 8-20" Besly, b. d.
 Grinder, 12x24" Landis univ.
 Grinder, sheet, Mattison.
 Grinder, surface 8" Heald.
 Grinder, sur. 14" Pratt & W., m. d.
 Grinder, surf. Diamond, table 48x16".
 Grinder, int. No. 60 Heald, b. d.
 Hammer, power, 80-lbs. Blacker.
 Hammer, power, 90-lb. Justice, b. d.
 Hammer, pwr., 100 lb. Brad cush.
 Hammer, Brad. 500 lb. upright.
 Hammers, Nos. 2-B, 3-B, 4-B, Nazel.
 Hammers, steam, 600 lb. to 6000 lbs.
 Hammer, stm. dr., 1500 to 10000 lb.
 Keyseater, No. 2 M & M, b. d.
 Lathe, 11"x5' Meyers, p. c. g., b. d.
 Lathe, 18x8', S-B b. d.
 Lathe, 18"x9', L & S., b. d.
 Lathe, 20"x10' Draper, b. d.
 Lathe, 22"x12' R-L q. c. g., d. b. g.
 Lathe, 24"x15' Prentice, grd. hd.
 Lathe, 42"x16' S. B. q. c. g., b. d.
 Lathe, 42"x30' Bdeffd. grd. hd.
 Lathe, roll, 18"x14".
 Lathe, spinning 32" b. d.
 Lathes, turret, No. 4 W & S. b. d.
 Lathe, turret, No. 6 W & S. grd. hd.
 Lathe, turret, No. 2A. W. & S., m. d.
 Lathe, wheel, 42" Niles, m. d.
 Miller, vert. No. 6 Becker, m. d.
 Miller, B. & S. Universal No. 4 b. d.
 Motors, a. c. & d. c.
 Nut tapper 8 sp. 1" National.

Pickler, 4 arm Mesta, 10' radius.
 Pipe machine 2" Landis b. d.
 Pipe machine, 6" Curtis, m. d.
 Planer, 42x42"x12' Cinc., 3 hds., b. d.
 Press, No. 20B Bliss, OBI.
 Press, No. 20C Bliss, OBI.
 Press, No. 8 L. & J. OBI.
 Press, No. 3 Bliss, Stiles type.
 Press, cam, No. 69N Bliss, dbl act, inc.
 Press, horn., No. 43 Toledo 14" str.
 Press, No. 93-B Toledo, b. d.
 Press, hyd. 100-ton Southwark.
 Press, hyd. 200-ton Oilgear.
 Press, No. 55 Toledo, bed 20x19.
 Press, No. 57 Toledo, 32"x32", str. 6".
 Press, sgl. crank, No. 77 Bliss, bd.
 Press, dbl. crank No. 8 Bliss, 2" str.
 Press, screw, No. 87 Niagara.
 Press, wheel, 150 ton Harris, b. d.
 Press, wheel, hyd., 300 ton Niles.
 Press, 6 spindle, W-F.
 Punch, beam, No. 5, H. & J.
 Punch, Rock River, 1/2"-1"
 Punch, EF Cleveland, 36" thrt., 1 1/2"-1"
 Pumps, Cent. 6", 4", 1", m. d.
 Riveters, air, hammer, spinning.
 Rolling mill, cold 9"x18"
 Saws, friction, Nos. 2, 3 & 4 Ryerson
 Saw, cold, 48" Newton.
 Saw, hack, Peerless, 4 1/2"x4 1/2".
 Saw, hack, Racine 6x6.
 Saw, hack, Racine, 12x12.
 Saw, hack, Peerless, 13"x16", m. d.
 Scale, sheet bundling, 2500 lbs.
 Shapers, 16", 20", 24" & 36" C. & E.
 Shears, alligator, 1 1/2", 2", 3", 4" & 6".
 Shear, angle 6x6x1/2", Cleveland.
 Shear, circle, Niagara, 4" cutters.
 Shear, circle No. 3 Bliss, 40"x30 ga.
 Shear, bar 1 1/2", New Doty.
 Shear, beam, 24" Cleveland.
 Shear, bevel, Lennox 1/2", b. d.
 Shear, plate 65"x1" H. & J.
 Shear, plate, 80"x1" Pels.
 Shear, sq. 10"x16 ga. Streine.
 Shear, sq. 11"x16 ga. Niagara, m. d.
 Shear, sq. 16 ga. No. 152 Niagara, bd.
 Shear, 120"x1/2", Lewis, m. d.
 Shear, 156"x1/2", Lewis, m. d.
 Shear, rotary 24" thrt. cap. 1/2", m. d.
 Shear, Buffalo all steel 3" sq., m. d.
 Slotters, 6" Newton, 8" & 21" Betts.
 Slotter, 24" Newton, motor drive.
 Straightener, 42" Aetna std 17 roll 34".
 Straight'r, 48" Aetna-Std 17 roll 34".
 Straightener, shape, Sutton No. 2.
 Straightener, Shuster, 12"x1/2".
 Straightener, 1 1/2", 4" rd. Abramson.
 Straightener, No. 5 K & R., b. d.
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Punch & shear, No. 52 Beliot.
Shear, No. 1 $\frac{1}{2}$ Canton Alligator.
Screw mch. $\frac{1}{4}$ " Cleveland auto.
Screw mch. No. 1, 2 & 4 B. & S. hand.
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Shaper, 20" Smith & Mills, c. d.
Shaper, 18" Springfield, b. g.

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Speed reducers, Reeves Dr. size
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B. & S. Nos. 14 & 16 pl., m. d.,
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Miller, thread, No. 8 Lees Bradner.

Miller, thread 4 1/2"x12" P. & W.

Nibbler, No. 2 Campbell 24" m. d.

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Swager, No. 3 & No. 4 Langelier.

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Band saw, metal cut., 6" Millband.
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Hack saws, Nos. 1 and 2 Marvel.

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Lathe, Rockford 18x8 q. c. g.
Mill, model c. s., Becker vert. s.p.d.
Shear, 8' Kuchard foot power.
Turret lathes, Potter & J. model 6A.

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Press, No. P-3 Ferracute m. d.
Press, No. 15 Robinson horn. (2)
Press, No. 13 Niagara horn.
Press, No. 14 Niagara horn.
Press, No. P-13 Ferracute deep

throat horn.
Shaper, 24" Hollingsworth.
Shaper, 24" Gould & Eberhardt.
Shaper, 16" Smith & Mill.
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Thomson.
Welder, spot, 47 KVA Taylor.
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Gear cutter, Hardinge auto.
Grinder, No. 11 B. & S.
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Lathe, turret, 4 spindle Turner.
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36" Crescent Band Saw. 1/2" saw.
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6" Merrell Cutting & Thread. Mch.
Lennox Rotary Bevel Shear, 3/4" cap.

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400 HP new Water Tube Boiler.
10ton Hand pwr. trav. Crane 46'8" span.
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- 5" bar, Niles Floor Type.
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- 35" bar, Landis No. 35 floor type.

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- 60" Bullard, P. R. T., M. D.
- 72" Bullard, Self Cont.
- 72" Betts heavy duty.

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- 4 Spindle Kokomo, 12 1/2" overhang.
- 4' and 6' Mueller, Gear Box (2).
- 5' Western m. d.
- 6' American universal.
- 6' American Triple Grd. Gear Box.
- 6' Cincinnati-Bickford.

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- 18"x8" Whitcomb-Blaisdell Cone.
- 20"x8" American Cone.
- 24"x12" American Cone.
- 24"x12" Putnam Q. C. G. Cone.
- 24"x19" American L. C. G.
- 26"x10" Boye & Emmes QCG Cone.
- 28"x17" Chard, Grd. Hd.
- 30"x12" S & B Cone, T. A.
- 36"x16" Bridgeford AC M. D.
- 36"x26" L & S cone Q. C. G.
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- 42"x36" Bridgeford Grd. Hd.
- 60"x30" Pittsburg Grd. Hd.
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- 48" Cincinnati Duplex.
- 8" & 12" Pratt & Whitney.
- 28" Cincinnati Semi Automatic
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MILLERS, Plain

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- No. 3G Hendey Grd. Hd.

No. 2B Heavy, B. & S.

MILLERS, Universal

- No. 2 Owen Cone.
- No. 2 Brown & Sharpe Cone.
- No. 2BS Milwaukee Grd. Hd. M.D.

MILLERS, Planer Type

Ingersoll adj. rail, 36"x30"x12".

PLANERS

- 84"x84"x18" N. B. P., M. D 4 hds.
- 72"x60"x18" D & H Openside.
- 48"x48"x10" D & H Openside.
- 48"x36x10" Cincinnati.
- 42"x36"x12" & 24"x6" Cincinnati.
- 30"x30"x10" D & H Openside.
- 17"x17"x4" Whitcomb M. D.

PRESSES

- No. 5 1/2 Z. & H. Percussion.
- No. 5 1/2 Toledo SS Grd.
- 400 ton Southwark Hyd. Vert.
- 400 ton N. B. P. Hor. Hyd. Carwheel.

PUNCHES and SHEARS

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- 54" H. & J. No. 2 double end.

ROLLS

- 12"x1 1/2" N. B. P. M. D.
- 17"x1 1/2" Niles A. C. m. d.
- 10"x1 1/2" Bertsch, pyr.
- 8"x8" Pyramid.

SAWS

- 10x10 Napier Metal Band Saw.
- 6x6 Avey Millband.
- 48" Ryerson Friction M. D.
- No. 2B Gorton Internal, 7 1/2".
- 6" Peerless univ., shaping.
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- No. 4B Cochrane & Bly.

TURRET LATHES

- No. 6 Warner & Swasey.
- 4L Gisholt—no cross slide carriage.
- 34" Gisholt Cone 5 1/2" H. S.
- No. 4B Gisholt Univ. Grd. head.
- 26" Libby, 7 1/2" spindle hole M. D.
- 26" Steidle 6 1/2" spindle hole M. D.
- No. 4 Warner & Swasey, 14".

MISCELLANEOUS

- 15" & 18" Drill Slotters.
- 18" Gleason Bevel Generator, M. D.
- 18" Gridley Automatic 4 Spindle.
- 24" Gridley Single Spin. M. D. Auto.
- Nos. 23, 24 & 34 New Britain chkg.
- Bolt Header, 2" Ajax.
- Nos. 3B & 4 LaPointe, Screw.
- Flanger, 4" McCabe Pneu.
- No. 13H B. & S. Gear Cutter.
- 11" Gleason Bevel Generator M.D.
- Hammers, Nos. 5N & 2B Nazel.
- 8" & 3" Jarecki Pipe Machine.
- 2" Bignall & Keeler Pipe Machine.
- 8" and 6" Saunders, Pipe Machine.
- Shaper, 7" Rhodes M. D.
- 34", 20", 16" Smith & Mills Cone.

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Bullard 24" New Era, arr. m. d., threading attachment.
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P. & W. 14" vertical surface.

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16"x8" Pratt & W., Rahn Larmon.
16"x8" Hendey g. h.
24"x10", 24"x12" New Haven.
20"x24" Whitcomb-Blaisdell.
30"x15" Lodge & Shipley.
Gisholt type "I"—24" tilting turret.
Pratt & W. 14x18, 2x26, 3x36 turret.
Jones & Lamson 24x24, 3x36.

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Bliss 68N, 69N, d. a. cam.
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W-F 20 ton, hi. speed grd. rack and pinion drawing.
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Special

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2x24" Jones & Lamson 2 spindle Flat Turret, s. p. d.
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3 $\frac{1}{4}$ " Gridley Single Spindle Auto. belt.
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21", 24" Gisholt Turret, belt.
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No. 4, 7 Bardons & Oliver Turret, belt.
No. 4 Foster Turret, belt.
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36"x36"x12" Niles m. d., 4 heads.
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Southwark Rotary Shear, s. p. d., 36" throat, cap. $\frac{3}{8}$ ".
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30"x14" Lodge & Shipley Patent Head.
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24"x10" Boye & Emmes, m. d.
24"x10" American, 3 step.
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20"x10" Hendey Geared Head, m. d.
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- No. 2 H. D. LeBlond Plain, cone.
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- No. 3 Kempsmith Plain, cone.
- No. 3 Hendey-Norton Plain, cone.
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- No. 3-24" Cincinnati Hydromatic, m. d. latest type.
- 24" Cincinnati Plain Automatic, m. d. National Standard.
- 24" Cincinnati Plain Automatic, m. d., National Standard.
- 24" Cincinnati Duplex Automatic, m. d.
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- No. 33 Kempsmith Mfg., s. p. d.
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- No. 30 Toledo Stiles type.
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Model M.
Automatics, Cleveland, 4 spindle, 4".
Model M Chuckers.
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Grinders, No. 1 LeBlond T. & C.
Grinder, No. 70 Heald Duplex, Internal.
Grinder, No. 84 Gardner Dble. Disc.
Opposed Type, Auto. Feed, M. D.
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Grinder, Pratt & Whitney Surface,
M. D., B. B. spindle.
Grinder, No. 7 1/2 Gardner Disc, M. D.
Grinder, No. 70 Heald Internal (3).
Grinder, No. 3 Abrasive M. D.
Grinder, Heim Centerless, M. D.
Grinder, No. 72 Hyd. Int. Heald,
M. D., (3).
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Grinders, No. 12A and No. 20 Bryant
Chucking.
Grinder, No. 1 Wilmarth & M. Surf.
Hammers, Nos. 3A & 4A Hi-Speed.
Lathes, 19"x12" LeBlond, Q. C.
Lathe, 16"x6" Hendey SPD.
Lathe, 18"x8" Hendey BMD.
Lathe, 20"x8" Cisco T.A.
Lathe, 30"x10" Reed Prentice M. D.
Lathe, Turret, No. 6 W. & S. Univ.
Lathe, Turret, No. 5 Foster, Univ.
Lathes, Tur., No. 9 B & O Univ. (2).
Mills, Nos. 2B & 3B B. & S. SPD.
Mill, No. 3GH Hendey Univ.

Mills, 18" and 24" Cin. Prod.
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M. D., 1 rail, 1 side head.
Planer, 60"x60"x14' Niles Bement
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Press, No. 14 Toledo Hor. Gr., M.D.
Press, No. 4A Bliss, adj. bed.
Presses, Nos. P2, P3, P4 Ferracut
M. D.
Press, No. DG53 Ferracut (3).
Press, No. 21 Bliss Cons. Horning (4).
Presses, 10 & 50 ton Henry & Wright
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Press, No. 6D Bliss, dble. crank, Tie
Rod, 12" stroke, 19" sh. ht., 34"x
66" bol. Twin Drive.
Press, Perkins, Cam Drawing.
Press, Cleveland, No. 44 Adj. Bed.
Presses, Ferracut SRC, 102 S.S., DC.
Saw, No. 3 Thiel, M. D.
Saws, 6x6 Racine (2).
Saw, Band, No. 3 Atkins.
Screw Machine, No. 4 W&S, bar feed.
Separator, Oil, 1 bu. Curtis.
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Shear, Niagara 36" 14 ga.
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Shear, 10' 3/8" Pittsburgh,
Shear, No. 736 Niagara.
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- 2—15⁸" MODEL "C"—5 Spdle.—National Acme Automatics, motor driven.
- 2—1" MODEL "C"—5 Spdle.—National Acme Auto., m. d.
- 1—No. 00 BROWN & SHARPE AUTOMATIC HI-SPEED Threading Machine.
- 4—No. 0 BROWN & SHARPE AUTOMATICS HI-SPEED with Automatic Rod Magazines, Swing Stops, Double Index Turrets.
- 5—No. 0 BROWN & SHARPE TURRET FORMERS HI-SPEED with Automatic Rod Magazines, Swing Stops.
- 2—No. 0 BROWN & S. TURRET FORMERS, HI-SPEED.
- 2—No. 0 B. & S. TURRET FORMERS, Regular Speed.

GRINDERS

- 3—No. 11—BROWN & SHARPE Plain, S. P. Drive.
- 6—No. 10—BROWN & SHARPE Plain, S. P. Drive.
- 1—No. 33—ABRASIVE VERTICAL.
- 1—No. 78—WILMARTH & M. SURFACE GRINDER.
- 6—No. 4—VAN NORMAN INTERNAL
- 1—8"—HEALD ROTARY.

MISCELLANEOUS

- 4—No. 21 BROWN & SHARPE AUTOMATIC MILLERS.
- 2—No. 2 PRATT & WHITNEY DIE SINKERS.
- 2—No. 3x36" BROWN & SHARPE GEAR CUTTERS.
- 6—4½"x12 PRATT & WHITNEY THREAD MILLERS.

LATHES

- 6—12"x5' HENDEY LATHES.
- 3—12"x6' HENDEY LATHES.
- 2—14"x6' HENDEY LATHES.

PRESSES

- 6—No. 16 BLISS HORNING PRESSES.
- 20—No. 5 LOSHBOUGH & JORDAN O. B. I. PRESSES.

**WE HAVE OVER 100 PRESSES IN STOCK
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Specials—Hard-To-Find Presses

IMMEDIATE DELIVERY

- NO. 94F TOLEDO**, Double Crank Tie Rod Frame, Equipped with Air Cushions, 12" Stroke, 32" Die space, Twin Geared, Double Back Gd. Bolster 72"x36" with Belted A. C. Motor Drive.
- NO. 93F TOLEDO**, Double Crank Single Back Geared, Tie Rod Frame, 24" Stroke, 11 1/2" Die Space, Bolster 66x34, with Belted A. C. Motor Drive.
- NO. 69D NIAGARA**, Double Crank, Single Back Geared, Tie Rod Frame, 6" stroke, 18" Die Space, Air Cushions, Bolster 60x36 with A. C. Belted Motor Drive.
- No. 31C E. W. BLISS**, Toggle Drawing Press—Standard Specifications, Belted A. C. Motor Drive; Bed 28x26.
- NO. 281 FERRACUTE**, Double Crank Back Geared Overhang Press, 3" Stroke, Belt Drive; Bed 32x24.
- BLISS**, Double Crank Overhanging Press, Back Geared, Belt Drive Press similar to No. 202B Toledo; Bed 42x12.
- NO. 92C TOLEDO**, Double Crank Solid Frame Single Back Gear Press, Belt Drive, Stroke 3"; Bed 42x30.
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- No. 21 & 21 1/2 Bliss—O. B. Inc. Presses.**

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- 12' Robinson Press Brake 1" cap.
66" Ohl. Press Brake 12" gap.
96" Chicago 3/16 Power Finger brk.
72" Power Sq. Shear 14 ga.
96"x1' Niles Plate Bending Rolls.

GRINDERS

- Diamond surface 16"x48" table.
Double disc grinders—all sizes.

LATHES

- 14"x6' Rockford q. c. Tool Room.
14"x6' Lodge & Shipley q. c.
16"x8' Monarch geared head m. d.
18"x12' L. & S. sel. grd. head.
26"x12' Bridgeford, q. c.
30"x14' Niles S. B. Grd. Cone.
30"x20' Niles S. B. Grd. Cone.
36"x14' American triple geared.
32"x12' Boye & E. cone head q. c.
36"x36' LeBlond q. c. motor drive.
44"x18' Lodge & Shipley c. d., q. c.

PLANERS AND SHAPERS

- 20" G. & E. Shaper, Cone Drive.
20" Cincinnati Shaper Cone Drive.
36"x12' Gray Planer 2 Heads.
60"x14' Gray 2 Heads.

MILLING MACHINES

- No. 2 B. & S. Plain Cone Drive.
No. 34 Oesterlein plain, cone drive.
No. 2 Brown & Sharpe, universal.
No. 4 LeBlond plain 3 step cone.

MISCELLANEOUS

- Boring Mill, 60" vertical.
4 Spindle Barnes Camel back drill.
Bolt cutter, 1 1/2" & 2" Acme.
Gear cutters, Nos. 3, 4 B. & S.
No. 1 LeBlond Tool & Cutter Grnd.
Radial 6' Drees, s. p. drive.
Straightening rolls, 54" H. & J.
16"x66" Landis Plain Grinder.

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Nos. 2 & 3 Wat. Farrel trimmer.
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No. 5C Manville trimmer.
1", 1 1/2" & 2" Landis 2 spdl. threaders.
2" & 3" Acme threaders.
1", 1 1/2", 4", 5" Ajax upsetters.
Presses, automatics, etc.

GRINDERS

No. Cincinnati centerless.
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Nos. 70, 72 & 75 Heald internal.
6"x32" to 14"x72" Norton.
6"x18" to 16"x53" Landis.
No. 4 B. & S. universal.
12"x24" Diamond surface.
16"x48" Diamond surface.
30"x72" Springfield surface.
No. 16 Blanchard surface.

MILLERS

Nos. 1 1/2 B. & S. 2A & 2B Milwaukee.
Nos. 2, 3 and 4 Cincinnati.
Nos. 1 1/2, 2, 3B & 4B B. & S.
Nos. 2 and 4 LeBlond.
No. 4 Hendey.
No. 2 B. & S. vertical.
No. 6 Becker vertical.
No. 2 Cincinnati, universal.
No. 3A & 3A heavy Brown & S. univ.
24" & 48" Cincinnati auto.
24" & 28" Cincinnati duplex.
18" Cincinnati plain Mfg.
Nos. 1 & 2 Kent Owens hand.

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3 1/2' Morris.
3' Dreses.
3 1/2', 4', 5', 6' and 8' Western.
4' Hammond elbow arm.
4' Mueller.
6' N. B. P. full universal.

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No. 6 Fellows shaper.
Nos. 16HS, 18H and 24H G. & E.
No. 12 Barber Colman.
Nos. 1 and 5A Lees Bradner.
6", 11" and 18" Gleason bevel.
Nos. 3 and 4 Brown & Sharpe.
48" Newark.
No. 2 Bilton automatic.

ENGINE LATHES

14"x6' American geared head.
16"x6' Monarch.

16"x8' Lodge & Shipley grd. hd.
16"x10' Lodge & Shipley grd. hd.
18"x8' Schumacher Boye.
20"x8' Monarch
22"x10' Davis.
24"x12' Lodge & Shipley.
27"x12' Schumacher Boye.
42"x42' Putnam geared head.

HORIZONTAL MILLS

2 1/2" Cleveland No. 1.
3" Defiance No. 5.
3 1/2" Landis No. 35 floor type.
3" Binsee knee type.

VERTICAL MILLS

24" Bullard, side head.
30" Bullard single turret.
34" Colburn single turret.
42" Detrick & Harvey.
60" Gisholt.
100" Betts.

PLANERS

24"x24"x24" Cincinnati crank.
24"x34"x6" Liberty openside.
27"x27"x6" Smith silk.
30"x30"x12" Cleveland openside.
32"x32"x12" Niles.
36"x36"x8" Gray.
36"x36"x10" Cincinnati.
36"x36"x12" Gray.
36"x36"x16" Cleveland openside.
48"x36"x10" Liberty openside.

PRESSES

No. C4 Ferracut O.B.I.
No. 75 Toledo openback.
150 ton Ferracut Coining.
600 ton Cleveland Coining.
No. 5A Bliss toggle.
No. 168 Toledo toggle.
No. 286 Consolidated cam drawing.
No. DDG54 Ferracut cam drawing.
Nos. 56 1/2 Toledo.
No. 74 1/2 Bliss.
Nos. 64 & 65 Consolidated.
P3, P4, PG4, PG5 Ferracut.
No. 25 Consolidated horn.
No. 4A Bliss Stiles horn.

SHAPERS

16" Ohio.
16" Gould & Eberhardt.
16" Cincinnati.
24" Walcott.
24" Potter & Johnston.
24" Gould & Eberhardt.

2000 TOOLS IN STOCK. SEND FOR LIST.

MILES MACHINERY CO.
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- No. 26 Brown & Sharpe.
24", 34", 44" Gridley sgl. spindle.

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- 5" bar NBP. floor type.
5" bar Newton Portable.
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No. 3-A Universal, 3" bar.
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- 1, 2, 3, 4 Spindle L-G.
1, 2, 3, 4, 6 Spl. Henry & Wright.
4 spindle Demco, p. f.

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- 32" Cinn.-Bickford sliding head.
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No. 210 1&2 spdl. Barnes.
20" Barnes, all geared.
No. D-5 Colburn.
No. 14 Natco Multiple.
No. 4 Bausch, mult.

Drills (Radial)

- 4' American Triple purpose.
4' Cincinnati-Bickford pl. radial.
5' American, full univ., m. d.
6' Western triple geared.
6' American Triple purpose.

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No. 15-H G. & E. hob.
No. 16HS Gould & Eberhardt.
Nos. 6, 61, 62, 65, 615, 625 Fellows.
No. 4-36" & 48" B. & S.
12"x72" G. & E. gear cutter.

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Nos. 10 and 12 B. & S.
6"x32" Norton.
10"x18", 24", 36" Norton.
10"x50", 72", 96" Norton.
10"x36", 52" Landis.
14"x36", 50", 72" Norton.
18"x96" Norton, m. d.
10"x144" Norton, m. d.
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No. 4-12"x66" Landis.

Grinders (Misc.)

- No. 14 Landis, Internal.
No. 70 Heald, Internal.
No. 10 Blanchard surface.
No. 16A Blanchard surface.
No. 25 Heald rotary surface.

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Lathes

- No. 3 L. & S. Duomatic.
14"x6' American geared head T.A.
16"x8' L. & S., T. A.
18"x8' L. & S. sel. grd. hd.
18"x10' American geared head.
20"-22"x14' L. & S. sel. g. h.
24"-27"x12' L. & S. sel. g. h.
25"-27"x26' LeBlond.
30"x20' American geared head.
36"x30' Rahn-Larmon grd. hd.
54"x23' Johnson, T. G.
66"x21', 39' Putnam t.g., m. d.

Millers (Plain and Universal)

- Nos. 0, 14, 2, 2-A B. & S.
Nos. 2-B, 3-B, 4-B B. & S.
No. 3-B Milwaukee s.p.d.
Nos. 2 & 3 Cinn. h. p., s. p. d.
No. 4 Kempsmith Maximiller.
Nos. 4 & 5 Cinn. h. p., s. p. d.

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- No. 3 Sundstrand Rigidmill.
No. 5 48" Cincinnati hydromatic.
18" & 24" Cincinnati automatic.
No. 4, & No. 8 Lees-Brad.
36"x36"x12' Newton Duplex.
33"x44"x30' Ingersoll slab.
48"x36"x16' Ingersoll adj. rail.

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Nos. 2 & 3 Cincinnati h. p.
No. 5-B Becker.
No. 6 Becker vertical.

Planers

- 24"x24"x12' Gray.
30"x30"x14' Gray, rev. m. d.
30"x30"x6", 18" Cincinnati.
36"x36"x8", 18" Cincinnati.
36"x36"x12' and 24' Gray.
36"x36"x14' - 24' Cleveland o.s.
42"x42"x30' N-B-P, Rev. m. d.
48"x48"x14' Liberty, openside.
60"x48"x16' Gray max. service.
72"x60"x16' American.

Presses

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Shapers

- 16" Gould & Eberhardt, m. d.
16" and 20" Stockbridge.
20" & 24" Gould & Eberhardt.

Turret Lathes

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No. 2-B Foster.
No. 3 Cincinnati-Acme, a. c., b. f.
No. 3-A Warner & Swasey.
No. 4-A Warner & S., 71" H. S.
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AIR COMPRESSORS; Curtis 9x9 dbl. cyl. vert.; Ing-Rand 5x4 & 7x6 horiz.; Bury 12x12 horiz.

BORING MILLS; Niles 36" c. d. Baush 44" m. d. N-B-P 54" s. p. d. Vert. with 2 heads; Barrett 5" bar c.d. horizontal; Bullard 51" Vertical 2 heads.

CUT-OFF MACHINE, Davis 6" cap. (3).

DRILLS (RADIAL); Mueller 2½", Foadick 2½", Prent. 3"; Carlton 4" all gear box drive; Hammond 4" sensitive.

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GEAR CUTTERS; G & E 36", G & E 48", G & E 60" & B & S 26" s. p. d. automatic spur; Fellows 36" gear shaper.

GRINDERS; P & W 12" vert. surf.; Cin. No. 1½" & B & S No. 12 univ. tool, B & S Nos. 11 & 16 plain, Heald Nos. 60 & 65 int.

HONING MACH.; Hutto 2-spindle Vert. M. D.

KEYSEATERS; M & M No. 0 vert. Burr horiz.

LATHES; Reed-Prent. 16"x8" grd. hd.; LeBlond 18"x8", Lehmann 18"x9", Hendey 18"x8"; Amer. 22"x8", Whit. Blais. 22"x8"; Davis 22"x10"; L & S 20"x10", S-B & E 20"x10" q. c. g.

MILLING MACHINES; Ohio No. 24, Kemp. No. 3, B & S No. 3, Cleve. No. 1 s.p.d. univ. B. & S. No. 2, Amer. No. 1½, Cin. No. 3, B & S No. 3, Hendey No. 3, LeBlond No. 3, Mil. No. 3-B s.p.d. plain, Becker Model "B" & No. 6 vert.; Kemp. No. 33 s.p.d. Prod.; Ingersoll slab, m. d.

PLANERS; Gray 30"x30"x10", Gray 60"x48"x10", 2 hds.; N-B-P 48" x 20" 4 hds. Gray 28"x28"x6" 1-hd.

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SHAPERS; S & M, G & E, Ohio, Mil., Q. City, Davis, Cin. 16"; Ohio & G & E 20"; S & M., Q. City, Rock, 24"; Ohio 26"; Cin. 24" s. p. gr. box; Rock. 24" m. d. gr. box; Rhodes 3½" Vertical.

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TAPPING MACHINES; (2) Garvin No. 2 Vertical Automatic.

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TURRET LATHE; Gisholt, 24" swing, 6¼" hole.

Above is only small part of our large stock on hand.

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1531-35 No. Broadway, St. Louis, Mo.

Good Machinery, Attractively Priced

BORING MILLS — Horizontal

Niles Bement-Pond No. 1 portable
3½" bar.
Beaman & Smith 5" and 6" bar.
Giddings & Lewis No. 0, 3½" bar.

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Brown & S. No. 0, 00, 0G, 2, 2G.
Gridley 9/16", 7/8", 1½", 1¾".
New Britain Nos. 22, 24, 33, 454.
Potter & Johnston Nos. 6A and 7A.
Cleveland 2", 3½", 3", 1½" model A.

GEAR CUTTING EQUIPMENT

Brown & Sharpe No. 6, 72".
Fellows No. 6, 61, 615 gear shapers.
Fellows Nos. 7, 71, 712 gear shapers.
Fellows No. 8B burnisher.
Lees Bradner planisher.
Gleason 24" gear planers.
Barber Colman Nos. 3, 12 hobs.
Cleveland 8 spindle gear hobber.

AN EXCEPTIONAL "BUY"

COCHRANE & BLY No. 14 Univ. Die Milling Machine and Shaper, power rotary table, high speed milling attachment, s. p. d.

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Natco Nos. 12, 13 and 22.
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Natco C-11 high speed.
Natco C-13-H hydraulic.
Bausch No. 4 rect. hd. 58x42; 30 sp.

TURRET LATHES and SCREW MACHINES

Libby 26" Turret: grd. hd.; 7½" spdl.
Gisholt 24" Turret.
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MILLING MACHINES Plain and Universal

Cincinnati No. 2, 3, 4 Plain, SPD.
B. & S. No. 2, 2B, 3, 4 Plain SPD.
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Kearney & Trecker No. 1 plain standardized spindle nose.
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BORING MILLS — Vertical

Bullard 24".
Niles Bement Pond 42", 44", 51", 52".
Niles 7-10' Extension.
Pond 90", 2 heads.

1000 other machines in stock—Ask for details

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Heald No. 72 Hydraulic.
Heald No. 72-A, 3 sizeromatic.
Brown & Sharpe No. 1 universal.
Bryant No. 3 internal.
Blanchard Nos. 10, 16 surface.
Heald Nos. 50, 55, 60, 65 internal.
Landis 20x132 cyl.
Norton 14x72, 14x96 plain cyl.
Pratt & Whitney No. 14 surface.
Springfield No. 7 grinder.

LATHES

Putnam 50"x30" grd. hd.
Putnam 36"x28" grd. hd. nearly new.
Pittsburgh 36"x35" grd. hd.
Lodge & Shipley 36"x16" grd. hd.
American 36"x21" grd. hd. Q. C. G.
Bridgeford 36"x60" boring & turning.
Bridgeford 36"x60" boring.
McCabe 27-49"x16" double spindle.
McCabe 24-48"x14" double spindle.

LeBlond 25"x12", cone drive.
Greaves Klusman 16"x8" m. in base.
Monarch 14"x10" grd. hd.
And 200 other lathes from which to select.

MILLING MACHINES

Manufacturing

Gooley & Ed. (Briggs) types A & B.
Cincinnati 15", 24" automatic.
Ingersoll No. 3 combined hvy. duty.
Ingersoll 24"x24"x12" planer type.
Ingersoll 24"x24"x12" adj. rail.

MILLING MACHINES

Vertical and Thread

Becker No. 4B, C-1 and C vertical.
Pratt & Whitney 6x14.
Kearney & Trecker No. 1 plain standardized spindle nose.

RADIAL DRILLS

Dreses 3'.
Reed Prentice 4'.
Cincinnati Bickford 6' pl.

DRILL PRESSES—High Speed

An assortment of 1, 2, 3, 4 and 6 sp.
high speed ball bear. drill presses.

What are your requirements?

Good Used Equipment

Drills:

20" Rockwell (Champion) BG PF.
22" Mechanic BG PGF, sl. hd.
25" American BG PF, sl. hd.
25" Gould & E. BG PF, sl. hd.
26" Barnes, BG PF.
28" Bickford BG PF sl. hd.
28" Hamilton BG PF.
Demco DAH, BB, MD.
Allen Type B, sgl. spd. MD.
Baker, Style F, heavy, elev. table.
Prentice 4-spindle BB.
Allen 5-spindle BB.
Natco Type K, 20-spindle.
Knight No. 1 Drill & Mill.
Fosdick 3 ft. radial BD.
Foote-Burt 4-spd., rail.
Wells 10-spd. worm gear drive Rail Drills (2).

Grinders:

Wells, 8x16" Cutter & Reamer.
No. 6-20 Besly 2-spd., pl. brg.
No. 220 Badger Auto. Disc. for piston rings, BB.
No. 1 LaSalle, plain & Surface.
No. 2 Van Norman Re-Li-O, piston M D.
Madison, Internal.
No. 65 Heald, cylinder,
14"x72" Norton.

Hammers:

No. 5A High speed, $\frac{1}{2}$ " cap.
No. 4-V-3 Grant, 18" thr. $\frac{1}{2}$ " cap., MD.
40-lb. Perfect, upright.
40-lb. Bradley, helve.
800-lb. Bement-Miles, steam.
1100-lb. B-M, steam (5).
2500-lb. B-M, steam (3).
6000-lb. B-M, steam.

Lathes:

26"x12" Putnam Pacific type; DBG,
Semi-QCG, Taper Attmt.; 20"
chuck; MD.
18"x12" LeBlond, SBG, PCG, chk.
18"x8" Lodge & Shipley Patent Hd.
14"x6" Lodge & Shipley Patent Hd.

Lathes-Turret:

16" Type A Gisholt, 64" hole in spdl.
24" Type I Gisholt, 4-31" hole.
24" Type I Gisholt, 4-31" hole.
No. 3 Foster, pl. hd.; 1- $\frac{1}{4}$ " hole.
J & L grd. head, chucking, 2- $\frac{1}{2}$ " hole.

Millers:

No. 3 Kemp Smith, 34"x11"x20"
No. 2-B Milwaukee, 28"x10"x19".
No. 34 Fox hand & power, 18x6x14".
2" Pratt & Whitney, spline, duplex.
No. 4B Hende Lincoln type.
No. 3B Owen, pl.; vert. attmt. & div. head.

Planers:

26"x26"x6" Whitcomb, 2 heads.
30"x30"x6" Whitcomb, 1 head.
42"x42"x18" Putnam, 3 heads.
60"x60"x12" Gray 4 heads.

Presses-Hydraulic:

Elmes; platen 30x30"; ram 8x5".
Hydraulic, 10 ft. betw. uprights.
Elmes 42-ton; ram 12x2"; MD.

Presses-OBH:

No. 01 V&O, 14" stroke; wt. 950 lbs.
Nos. 2, 3, 4, 4 $\frac{1}{2}$, 5, New Loshbough-
Jordan, plain.

Presses-Straight Side:

No. 7 Zeh & Hahneman, geared;
wt. 6000 lbs. stroke 1 $\frac{1}{2}$ ".
SG No. 81 Ferracute grd. double
crank; wt. 12000 lbs.; stroke 3".
No. 167, No. 168 Toledo, toggle.

Punches:

No. 6 L & A grd.; $\frac{1}{2}$ " in $\frac{1}{2}$ "; 24" thr.
Style C Cleveland, grd.; $\frac{1}{2}$ " in $\frac{1}{2}$ ";
26" thr.

Saws-Cold:

No. 4 Higley; cap. 7" round.
Knowlton; cap. 8 $\frac{1}{2}$ " round; new.

Saws-Band:

5" Wells metal cutting, MD.
Racine, 14" with motor.

Shapers:

16" Barker, cone dr; BG.
20" Smith & Mills, B. G.
20"x8" Cincinnati, traveling hd; m.d.

Shears:

Lennox, Bevel, $\frac{1}{2}$ " cap.

Threaders-Pipe and Bolt:

2" No. 402 Oster Power Boy, electric
pipe.
 $\frac{1}{2}$ " Murchey double head, bolt.

Welders:

2 $\frac{1}{2}$ " & 5 KW Dyer, spot, bch., 220 volt.

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WARNER & SWASEY SCREW MACHINES

6-No. 2 REBUILT and COMPLETE

CLARK MACHINERY COMPANY
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A Few Of Our 2,000 Machines

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- 1-72"x29" Niles Bement Pond.
- 1-65"x32" Bement Hvy. Duty.
- 1-42"x20" Betts Bridgeford.
- 1-36"x26" Niles Bement Pond.
- 1-30"x36" Bridgeford.
- 1-30"x16" H-S-Gamble.
- 1-24"x30" Lodge & Shipley.
- 1-18"x8", 14"x8" Lodge-S., G. H.

BORING MILLS

- 1-24" Bullard New Era.
- 1-36" Hullard Rapid Production.
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 - 1—200 HP, F. M. s. rng. 1200 RPM.
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12"x¼" Robinson Press Brake.
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No. 14 Valley City, univ., m. d.;
No. 2 Cinc., all grd., m. d.; No. 2
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Ohio, univ; No. 4-B Becker vert.
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Willard; No. 34 Tol.; No. 3 Rob.
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24" BULLARD New Era Vertical Boring Mill; 16"x12' SIDNEY Grd. Head Lathe,
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COCHRANE & BLY COMB. Mill and Shaper, M. D.

Hacksaws, No. 5 Marvel, M. D.;
6x6 Peerless Shaping.
Lathes, 14" to 22" Lodge & Shipleys,
q. c. g.; 16"x10' Hendey, taper att.;
16"x10' Seneca Falls, q. c. g.; 19"x8'
LeBlond q. c. g. taper att.; 20"x8'
American q. c. g.; 16"x8' Monarch;
q. c. g.; 20"x8' Monarch, q. c. g.;
20"x10' Prentice grd. head; 24"x12'
S. & B. q. c. g. taper att.

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Drill, No. D-3 Colburn, h.d., 3" cap. in steel.

Dr II press, 4 spindle No. 2 Avey.

Drill, 3 spindle L. & C. power feed.

Grinder, No. 10 Besly double disc.

Grinder, surface, No. 2 Reed.

Grinder, No. 3 Abrasive surface.

Grinder, No. 33 Abrasive surface, vertical.

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Lathe, 32"x18" Bradford.

Lathe, stub, 12" Sundstrand.

Miller, No. 2B K.&T. pl. complete.

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Miller, No. 13-B B. & S.

Miller, No. 1 Kemp Smith univ.

Planer, Cleveland 30 x 30 x 10' openside.

Planer, 56"x56x12' Gray.

Planer, Cleveland 48 x 48 x 12' openside.

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Punch, No. ½ Buffalo Ironworker.

Screw machine, No. 4 W. & S.

Shaper, 20" S. & M. single pulley, m. d.

Shaper, 20" American s. p. d.

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48" Colburn.

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60", 42" Bullard.

24"-36"-42" Bullard New Era Vertical Turret Lathes.

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Control, Table Type.

MILLING MACHINES

Nos. 5, 4, 3, 2 Cincinnati, Plain.

No. 4 Cinc. Rectangular overarm.

No. 3 Kemp Smith Plain.

No. 15 Garvin Vertical.

No. 2 LeBlond Universal.

RADIAL DRILLS

8" Cincinnati-Bickford Enclosed Head, M. D.

LATHES

48"x17" Houston Stanwood & G.

36"x12" Lodge & Shipley.

32"x17" Houston Stanwood & G.

20"x10" Reed-Prentice.

20"x10" Lodge & Shipley.

20"x8" American.

MISCELLANEOUS

Drill, No. D4 Colburn Heavy Duty; 36" Cincinnati-Bickford Tapping.

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Grinders, (2), No. 16 Blanchard B. D. 26" chuck; also with direct m. d.

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Planer, 60"x54"x16" Woodward & Powell, three heads.

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Turret Lathes, 3"x36" J. & L.—Bar and Chucking; 26" Libby.

Turret Lathes, 6¼" hollow spindle x 24" Gisholt.

Turret Lathes, No. 2A Warner & Swasey Universal.

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- 5th Detroit & H. floor type, M. D.
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- 14"x6' Rock. q.c.g.; taper att.
14"x6' Rockford semi quick.
16"x8' Lodge & Shipley, grd. head.
16"x8' Seneca Falls; q.c.g.
16"x8' Bradford, quick change grs.
16"x8' LeBlond q. c. g. chucks.
18"x8' Boye & E. quick change gear.
18"x10' Boye & E. q. c. g.; taper att.
18"x10' Bradford, quick change grs.
28"x12' Boye & E. q. c. g.; taper att.

DRILL PRESSES

- 24" Snyder back grd. power feed.
No. 2 Avey, 14 1/2" overhang b. b.
3 spindle Allen ball bearing pwr. feed.
No. 2 Avey, tapping attachment.
14" Allen ball bearing.
2 spindle b. b. Leland Gifford.
2 spindle B. B. Allen.
22" Fosick ball bearing, geared.

SCREW MACHINES

- No. 1 Foster hand screw machine.
Nos. 2 & 4 Warner & Swasey.

MILLING MACHINES

- No. 2A B. & S. univ. tapered nose.
No. 3A B. & S. Univ., Comp.
No. 3 Cincinnati plain.
No. 2 1/2 B Milwaukee vert. rot. tbl.
Pratt & Whitney bench.
No. 3 Burke bench.
No. 00 B. & S. hand feed.

SHAPERS

- 15" Hendey equipped with vise.
16" Rockford back geared.
17" Smith & Mills, back geared.
20" Ohio back geared.
20" Steptoe back geared.

MISCELLANEOUS

- 24"x24"x6' Gray planer, motor drive.
No. 1 1/2 Landis universal grinder.
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8' Hendley & Whittemore roll.
90 ampere Lincoln arc welder.
Covel hd feed surface grinder, m.d.
Rhodes Slotter 3 1/2" stroke.
No. 15 Greenerd arbor press, port.
No. 72 Niagara combination, M. D.
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6"x6" Peerless high speed saw.

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NEW 3 Phase Motors 1 to 20 H. P., 5 H. P.-----\$55.75

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- 12"x6' Monarch, quick change.
16"x8' Hamilton, quick change.
18"x8'; 21"x10' South Bend, new.
20"x10' Bradford.
24"x24' Prentice.
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- Nos. 1 and 3 Woods-tilted.
Nos. 52, 53, 55 Nat'l Acme auto.
1 1/2" cap. Smurr & Kamen.
21" and 24" Gisholt.

SHAPERS

- 16" B. G. Queen City.
20" Smith & Mills.
25" Smith & Mills.
14" Niles travelling head.

DRILLS

- Bausch No. 1, multiple spindle.
32" Hoefler, sliding head.
6' ceiling.
4, 24" Foote-Burt, single base.

MILLING MACHINES

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No. 4 LeBlond plain.
No. 2 Brown & Sharpe, heavy.
24"x20"x8' Ingersoll.

MISCELLANEOUS

- Planer, 36"x36"x14' Gray.
Planer, 42"x42"x10' Gray.
Planer, 36"x36"x12' American.
Press, No. 2 Toledo O. B. I.
Press, No. 24 Toledo Cam Drawing
Press, No. 75 Toledo,
Presses, New Federal & Robinson.

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Guaranteed Factory Rebuilt Tools

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Bradford 24"x12" lcg lathe; grd. fd.; c. d.
Reed 24"x12" l. c. g.; s. b. g.; belt cone dr.
Bradford 20"x8" q. c. g.; taper att.; c. d.
LeBlond 19"x10" Semi-qcg Turning bd.
LeBlond 18"x10" Late with tur.; c. d.
LeBlond 18"x8" l. c. g.; d. c. mtr. driven.
LeBlond 17"x6" Semi-qcg Turning bd.
LeBlond 17"x6" Mfg. Type; cone dr.
Bradford 16"x8" hd. q. c. g. lathe; c. d.
Willard 16"x6" Semi-qcg t. a., c. d. dr.
Willard 13"x6" Semi-qcg t. a., c. d.
LeBlond No. 9 Multi-cut lathe, s. p. d.
Chard 16"x8" q. c. g. Lathe; c. d.
McCabe 50—27" dble. spdl. d. c., m. d.

SHAPERS

26" Walcott Plain Crank; belt drive.
26" G. & E. b. g., s. p. d.
24" Cincinnati, b. g., cone drive.
24" Gould & E. b. g. V-ram; m. d.
22" Ohio, b. g., cone drive.
16" Gould & E. b. g. V-ram; m. d.
16" Barker pl. crank shaper; cone dr.
12" Smith & Mills plain crank. b. d.

MISCELLANEOUS

(2) 4½" Gridley Spl Spin. Auto; b. d.
2¼", 3¼" Grid-yspl. spdl. Auto.; b. d.
Atkins No. 3 metal cutting band saw.
Racine 6"x6" cab. base saw; b. d. wet.
Racine 13"x13" hack saw, belt drive.
6"x6" Peerless H.S. Saws, b. d.
4½"x4½" Napier horiz. hack saw, b. d.
Fosdick No. 2-A horiz. floor type box mill, b. d.
Rockford 3½" bar horiz. bor. mill; m. d.
Rochester 3½" bar horiz. b. r. mill; m. d.
Niles-B-P 3½" bar horiz. bor. mill; m. d.
King 42" vert. bor. mill; 2 hds.; m. d.
Niles 72" vert. bor. mill; 2 hds.; b. d.
Lucas 4" dia. bar horiz. boring mill, m. d.
(2) B & S No. 3 26" gear cutters; b. d.
No. 5A Leas-Bradner gr. gen. b. d.
Grand Rapids No. 4 drill grinder, m. d.
Ohio No. 3 cutter & tool grinder; b. d.
LeBlond No. 1 cut. & tool grinder; bd.
Bertach 10"x10" Press Brake, motor dr.
American Can Co. No. 20. b. i. Press b. d.
Toledo No. 3 o. b. i. Press; b. d.
Pangborn sand blast equip.; like new.
Alfred Herbert 2½" gh turret lathe spdl.
J. & L. 2 spdl. turret lathe, g. hd., chuck, s. p. d.

B. & O. No. 6 turret lathe, bar, b. d.
Gisholt 21" tilted turret lathes, m. d. (2)
Gisholt No. 6 HD Turret; AC m. d.
Streit 24" Pulley Turning Lathe c. dr.
Chicago 9"x8" Air Comp.; b. d.
Bellevue No. 14 indus. furn.; oilburning.
P. & W. thread mill; 6"x48"; b. d.
Theil die filing machine, motor driven.

PLANERS

60"x60"x14" Cincinnati; 2 hds.; b. d.
55"x55"x30" Betts, spur geared 2 hds. on rail, motor drive.
36"x36"x16" Gray planer, 2 hds.; bd.
32"x32"x10" Gray planer; 2 hds., bd.
32"x32"x14" Gray planer, 2 hds.; bd.
30"x30"x18" Gray planer, 1 hd., bd.
26"x26"x10" Gray; 2 hds.; m. d.
26"x26"x6" American, belt drive.

MILLING MACHINES

Rockford No. 1½ plain miller; p. l.; b. d.
Cincinnati Nos. 4, 3, 2 pl.; cone dr.
Becker No. 6 vertical h. d.; cone dr.
Brown & S. No. 1 Y Pl. Miller Cone Dr.
Garvin No. 12 Miller; c. d.

GRINDERS

Gardner No. 2 b. b. disc grinder; b. d.
B. & S. No. 26 plain cylindrical; b. d.
B. & S. No. 11 plain cylindrical; b. d.
No. 2 Diamond surf. grinder, motor dr.
Ott No. 8 pl. cyl. Grinder; 6"x18"; b. d.
Modern 12"x24"; pl. cylindrical; b. d.
Heald No. 60 Internal Grind.; b. d.
Heald No. 72 Internal; belt drive.
Heald No. 65 Internal gr.; b. d.
Landis No. 1½ universal & tool; b. d.
Landis 20"x96" Self-Contained, b. d.
Norton 6"x30" Plain Cyl.; b. d.

DRILLS, Radial & Sensitive

Bausch 8-sp. multi drill; No. 3 mt; spdl.
Fairbanks 20" stat. hd. drill; bg; pf; bd.
8-spindle Moline hole drill, cone drive.
3½" Cinti-Bick RC radial, d. c., m. d.
Cinti-Bick, 3" radial dr.; d. c. with mtr.
Mueller 4" radial, extend. column, s. p. d.
Fosdick 5" box column radial, s. p. d.
Colburn No. 2 hi duty; t. & l. pul. dr.
Baker No. 310 hvy. duty, belt driven.
Foote-Burt hd. prod. 4-spin. drill; pf.
Foote-Burt No. 25 h. d.; sgl. pul. dr.
Foote-Burt 4-spindle rail type; b. d.
Barnes camel back 2-spindle; belt dr.
Barnes 3-spindle 20"; p. f.; belt dr.
Avey No. 3 b. b. sens. drill; m. d.
Avey No. ½ high speed 6-sp. drill; b. d.

THE E. A. KINSEY CO.

333 West Fourth St.,

Est. 1886

Cincinnati, O.

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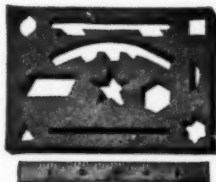


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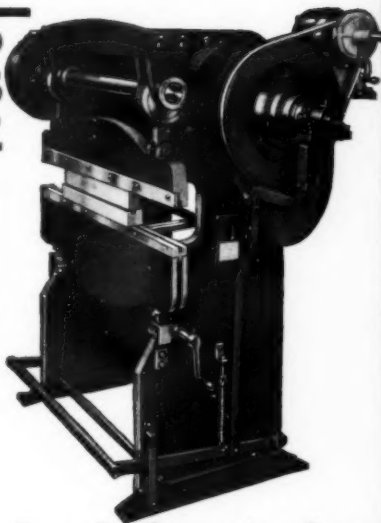
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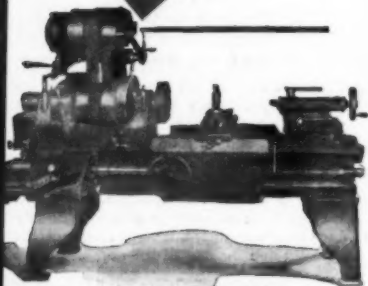
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